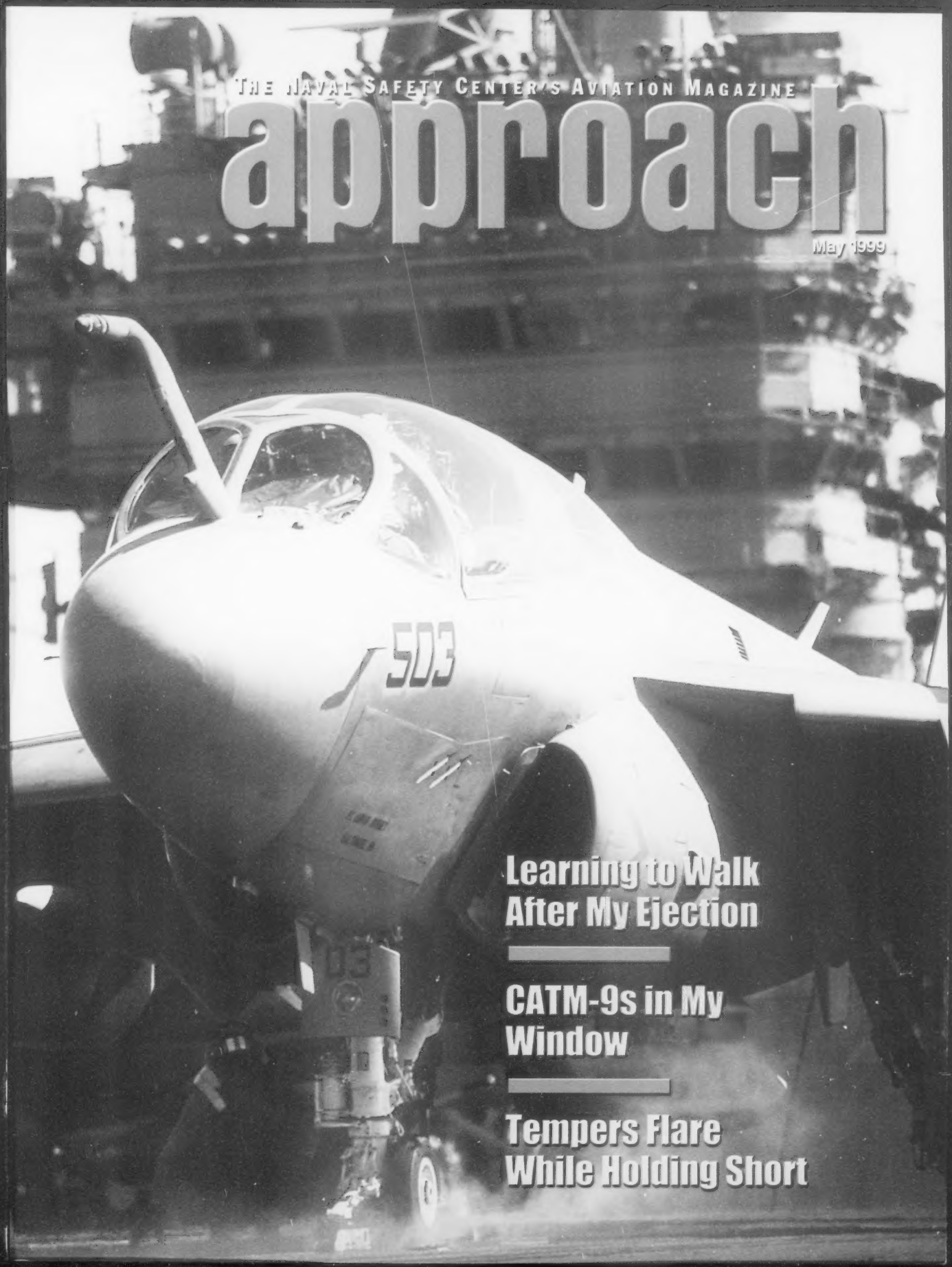

THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

approach

May 1999

Learning to Walk After My Ejection

CATM-9s in My Window

Tempers Flare While Holding Short

inside approach

The Naval Safety Center's Aviation Magazine
May, 1999 Volume 44, No. 5
On the cover An EA-6B of VAQ-135 on USS *Carl Vinson*'s cat 1 during Operation Desert Fox. *Photo by Tony Holmes.*

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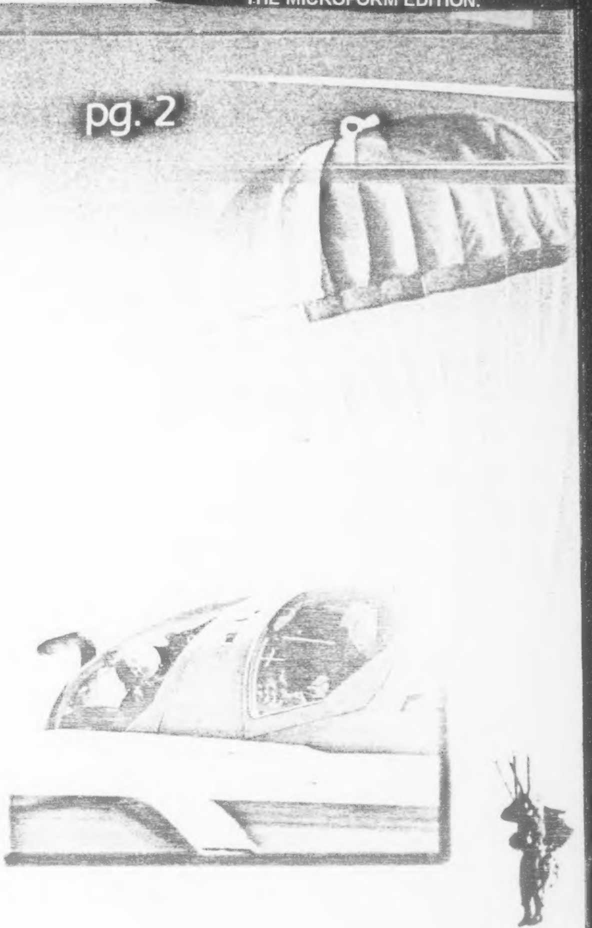

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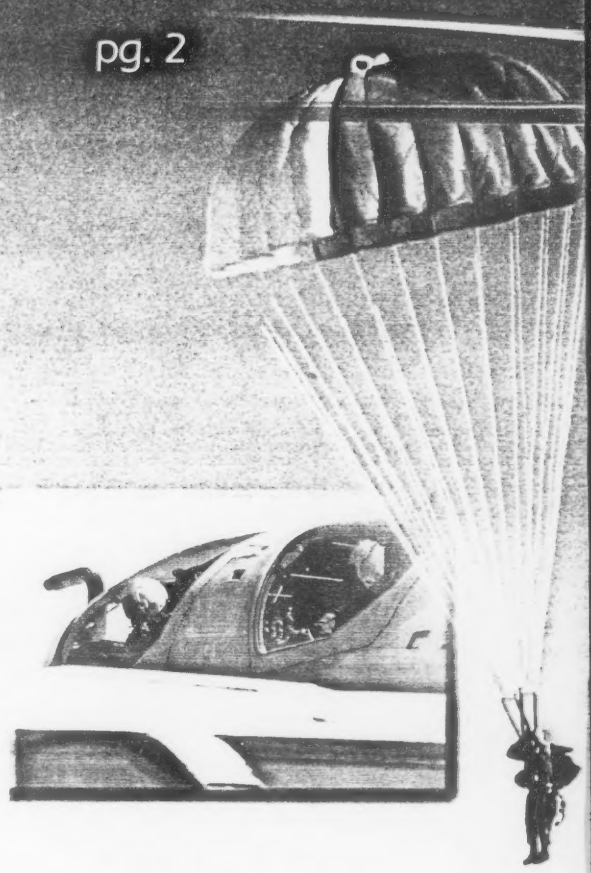

features

departments

I'll Learn to Walk

by LCdr. Charles E. Luttrell

THE SHIP AND AIR WING WERE IN THE Compuex portion of training. I was scheduled as ECMO 3 in Dash 2 on a 1 v 1 defensive-tactics hop. That was the good news. The bad news was the ship had GQ at 0700, and the brief would begin before the GQ ended. It would be an early start out of our sleepy-hollow bunkroom.

The deck was a little slow, and the launch started 10 minutes late, which would compress our time to complete all of the training objectives. But we knew we could get the "X."

Once airborne, we checked in with control, who changed our working sector. That was OK until our playmate didn't show up. The controller had sent them to the original working area, which was 10 minutes away. Now time had become a factor, and the lead bustered to join us. En route, the two crews discussed which maneuvers we would cut out to get the "X" and make our recovery time.

We rendezvoused 25 minutes before recovery. After a quick FOD check and G-awareness turn, lead took the perch at 15,000 feet and called, "Fight's on!"

When lead rolled in, we pulled about a 3.5-G turn into him. At his CPA, we started the highly treasured Prowler unload-and-run-away maneuver. We lost some altitude and around 12,000 feet, lead called, "That's good. Let's reset."

Our plane rolled 150 degrees, and the nose began seeking the earth. Lead called, "Knock it off, knock it off," before we reached the 10K hard deck.

There was no response from our pilot as we continued descending, inverted. A few seconds later, I heard, "Level your wings. Pull up."

I remember looking up at the clouds and down at the water. I came back into the cockpit and saw that we were 70 degrees nose low, still inverted, the altimeter unwinding past 5,000 feet, and we were going more than 500 KIAS. I knew if I did not eject immediately, I would be killed when the seat drove me into the water. Just before pulling the handle, I heard three or four words but do not know where they came from. My next memory is the pain as I rode the rails. The wind blast tore my helmet off and drove my mask through my chin and into the roof of my mouth, separating my upper jaw, breaking my nose, and fracturing my sinuses on the left and right side of my nose. Both my arms were fractured at the elbow, and my right arm was dislocated and fractured.

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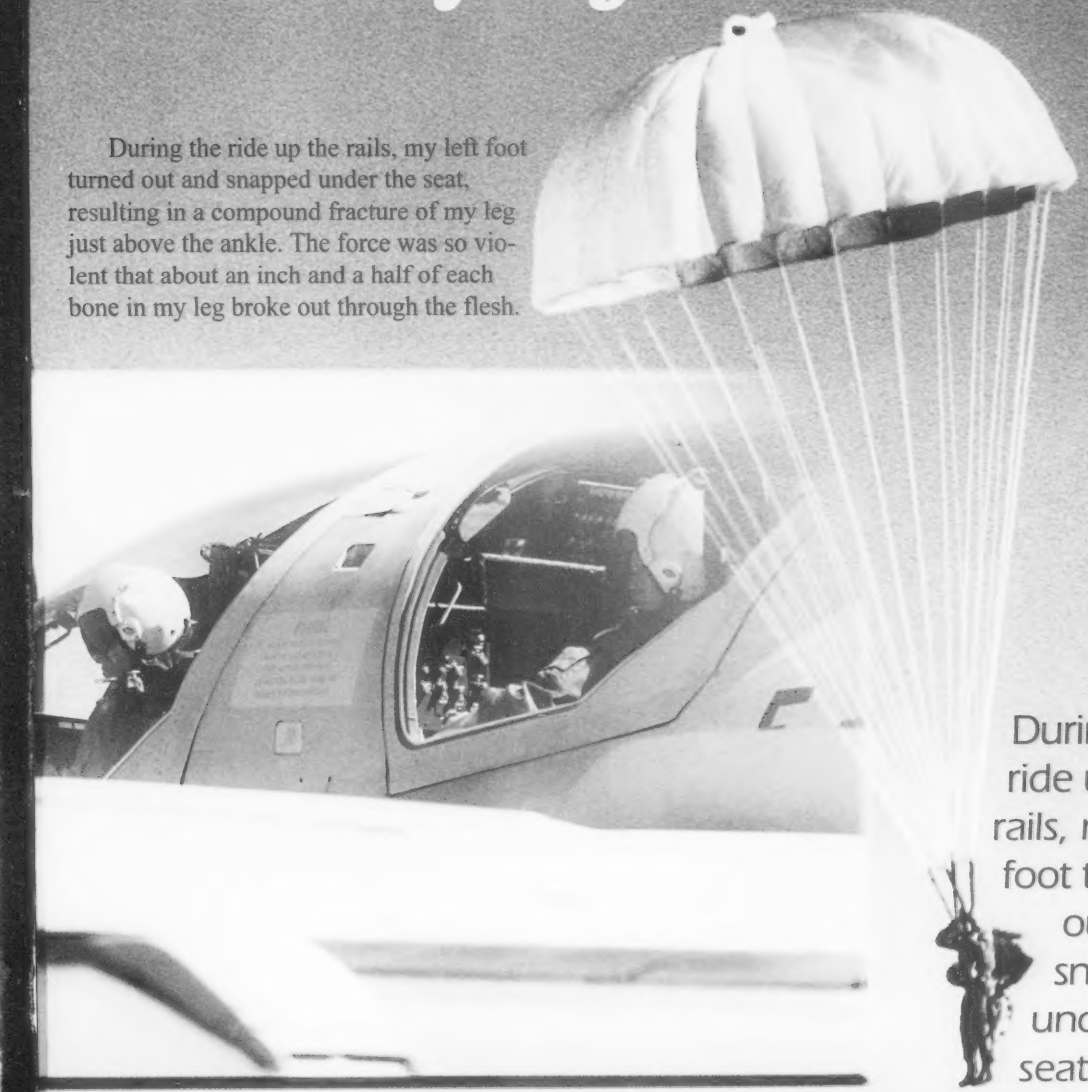
After My Ejection

During the ride up the rails, my left foot turned out and snapped under the seat, resulting in a compound fracture of my leg just above the ankle. The force was so violent that about an inch and a half of each bone in my leg broke out through the flesh.



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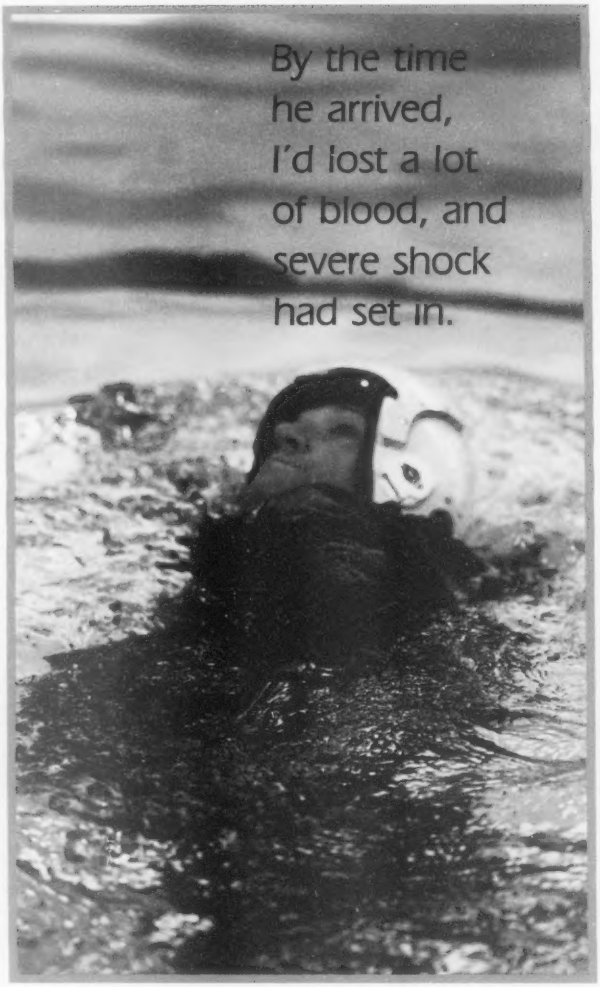


Once I hit the water, my day didn't get any better. Seawars separated me from my chute, but my right upper LPU lobe didn't inflate. With both arms broken, I couldn't inflate my LPU manually or get into my raft, so I just kept kicking with my right leg driving me around in a circle like a duck on a pond. I had checked myself over and knew I needed help. I decided it was time to look for others. The swells were 4 to 6 feet, and the wind was creating white caps.

As I rode up one swell, I saw ECMO 2 and opened my mouth to yell just as a white cap hit my face. I found out very quickly that I can't drink water and talk at the same time. After I spit out the water and started breathing again, I yelled at ECMO 2 and told him I was hurt. He yelled back to "stay there and I will swim to you." You can imagine my relief because the only thing I could do was go in circles. By the time he arrived, I'd lost a lot of blood, and severe shock had set in.

Once he arrived, I began panicking, and he pulled me in close to calm me down. He was beat up pretty badly, too, with his left arm broken in three places, a shattered shoulder blade, and four fractured vertebrae. To preserve heat and help keep me afloat, he wrapped his broken arm around me and pulled me back onto him. The water temperature was 61 degrees, and hypothermia was affecting us. (When we were pulled out of the water, both our core body temperatures had dropped to 85 degrees.)

The SAR helo had redlined it all the way out to us, arriving in about 15 minutes. The swimmer dropped into the water and ECMO 2 had him load me first. Once the swimmer loaded ECMO 2, he headed toward ECMO 1, who was floating, but not moving, on his chute. The swimmer then tried CPR for 30 minutes on ECMO 1 while the helo took us back to the ship. The pilot was not recovered.

After we landed on the ship, the crew brought us to the ordnance elevator. I remember all the people staring at me while I rode down to medical. Once the doctors stabilized both of us, we were airlifted to San Diego Naval Hospital. After five hours of surgery, I was in critical condition but breathing on my own, although I think the tubes up my nose and down my throat helped.

I awoke the next morning to a room full of spectators. I couldn't move anything on my body except my right hand and two fingers of my left hand. I tried communicating by blinking my eyes. It was like a charades nightmare. Guess I should have paid more attention to the Morse code class in Boy Scouts.

I managed to ask the people in the room about the rest of the crew. All of the smiles

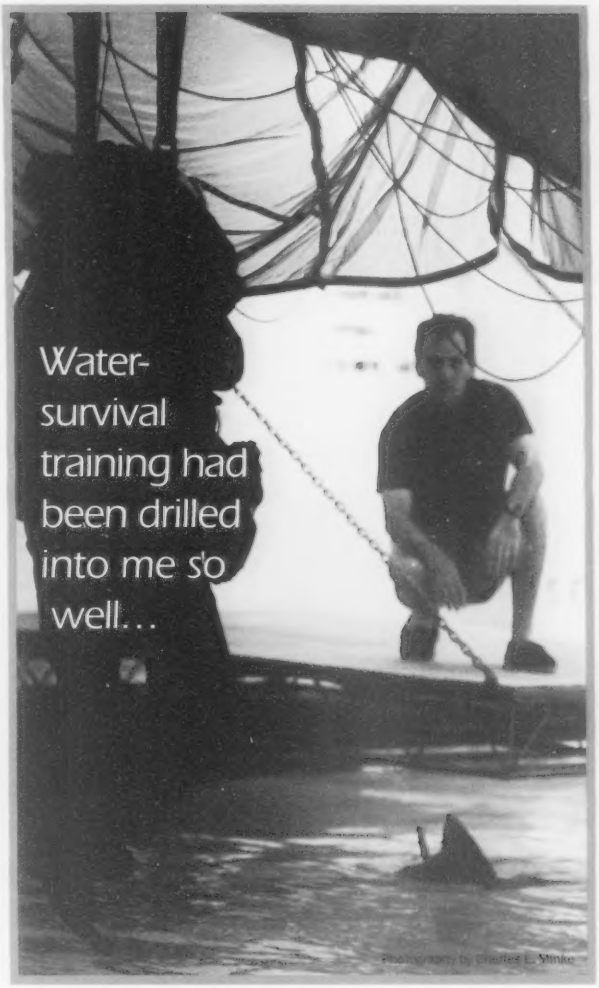
went away, the room got quiet, and everyone turned to the doctor. I asked about the pilot, and he shook his head no, then ECMO 1, and he shook his head again. I cringed, wondering what I had done wrong to cause the mishap and why I did not get everyone out of the plane. I was hesitant to ask about ECMO 2, but the doctor piped up and said he was fine and just across the hall. In a couple of days, he would have him come see me.

Next, my thoughts turned to all the machines they had me hooked up to. I watched the doctor's face when I signed the question asking if I would ever be able to run again. He smiled and said, "Maybe we should just worry about learning how to walk first." This was the first time I understood the extent of my injuries.

The next two weeks in the hospital were hard. I wondered if the mishap was my fault, or if I could have done anything to prevent it. I could not get any answers for my questions from anyone because of the mishap investigation. The combination of the pain medicines and having so little memory of the mishap after I ejected took its toll on me emotionally until people from the air wing and ship started visiting me. There is absolutely nothing better for the spirit than an aviator's sense of humor. Many Whidbey crews visited me in the hospital. Their 15-minute visits brightened my days. They got me through the self-blame and guilt stage of the mishap without professional help.

I am flying again with a waiver. I have many lessons learned, but not all of them have to do with flying. My perspective is different, and the investigation came up with only possible causes and a lot of guessing.

We were cited for not ejecting quickly enough. Yet, our plane was in controlled flight until we left it. It is an extremely difficult decision to leave a plane in controlled flight, but sometimes you need to. The investigation report's findings are hard to accept when they criticize our judgment. You have to take the criticism with objectivity and move on.



Water-survival training had been drilled into me so well that when I needed it, it came out like a bold-face EP.

Aviators ignore the emotional side of things unless we lose the race to the debrief and lose the fight. The support I received from the air wing and my community was instrumental in lifting my spirits while going through 15 operations to put me back together while contending with the struggle of occupational and physical therapy. If you have a squadronmate in the hospital, go visit him or her. You will make their day.

LCdr. Luttrell is the safety officer for VAQ-142. He was med-down for 13 months following the mishap.

But We *Promised* to Do

Lt. Wayne S. Grazio

by Lt. Ben Hewlett

IN THE MIDDLE OF OUR WORK-UP schedule, I had one at-sea period and Fallon under my belt. We were back at FCLPs preparing for FLEETEX. It was a typical night, S-3 bounce period—over to El Centro and then back to North Island. As usual, when we got closer to the deployment, the FCLP crunch began, and we started loading the jets with pilots, rather than the regular pilot-NFO front-seat crew.

After a quick hop over to El Centro in the back of the Hoover, I got out and waited my turn in the LSO shack, watching my compatriots bounce around the pattern. Finally, it was my turn to get in. I was supposed to bounce and then head back to North Island. The rightseater (a pilot) climbed out and went to the LSO shack to wait for his ride. The pilot moved over to the right seat, and I promptly got into the

the Checklist!

left seat after ensuring the back seats were still secured.

Then the dominoes began falling. We rushed through the takeoff checks, but after we called for takeoff, tower told us to hold short because the pattern was full of Hoovers and Hornets. We decided to keep the APU running while we sat on the hot tarmac behind the hold-short, promising ourselves we wouldn't forget to shut it down before takeoff.

Finally, we got clearance for an immediate takeoff. We hurried onto the runway to lift off in the small window the tower had cleared for us. We ran up the engines to MRT and started rolling. When we were almost at rotation speed, the LSO reported he had heard a loud thumping as we passed by the LSO shack. He thought it sounded like a blown tire.

We turned downwind with the gear down and asked tower for clearance to climb so that we could "delta easy" and sort out our options. We discussed the fact that I hadn't noticed anything unusual about the aircraft as we rolled down the runway. We talked about whether we should set it down right there in El Centro or fly dirty back to North Island. We opted for the latter, told the LSO and tower, then headed west to North Island as fast as a dirty S-3 could fly.

Shortly after leaving El Centro's airspace, we discovered the APU was still running. Oops! Both of us had missed it and had launched without completing the takeoff checks. It was probably the APU exhaust being ingested into the No. 1 engine that had caused the thumping sound. But without a visual confirmation, we decided to stick with the game plan and take an arrested landing back at North Island.

The flight back was very slow, and we had time to discuss what had happened. The pilot in the right seat broke out the PCL, and we went through the arrested-landing checklist.

Thinking we had covered all our bases, we requested a visual straight-in to runway 36 for an arrested landing and dropped our tailhook. The tower cleared us to land and reported crash crews were standing by. As we turned final, I could see the blinking dots from the arresting gear on both sides of the runway, and I aimed the jet inside of 1,000 feet before the gear. Because of the short final I was on, I found myself high and fast as I approached the runway.

On touchdown, I went to idle, popped the boards, and waited for the hook to catch as the jet rolled toward the arresting gear. And I waited and waited. Hook skip! The jet was rolling out normally, so I knew instantly

…the LSO reported he had heard a loud thumping as we passed by the LSO shack. He thought it sounded like a blown tire.

... the aircraft turned hard to the left, narrowly missing the runway surface and the long-field arresting wire with the right wing tip.

I didn't have a blown tire. I applied the brakes to begin a normal landing rollout.

The instant I touched my brakes, I got a caution light for anti-skid failure, with an associated master-caution light. The brakes weren't responding. The pilot in the right seat confirmed the anti-skid light was illuminated, and I reached down to move the three-position brake switch out of the anti-skid position and into the normal brake position.

I inadvertently pushed the brake-selector switch all the way through normal brakes and into the emergency-brake position. The brake-selector valve pulsed as it switched to emergency brakes, and I heard a loud thump on the right side of the jet and felt the aircraft pull to the right.

Now I did have a blown tire, and as the aircraft slowed through 100 knots, the pull to the right required almost full left rudder to keep the aircraft on the runway. With less and less wind over the rudder, the aircraft was nearing the right edge of the runway. I could see the long-field arresting gear battery approaching the nose of the aircraft. I thought about exiting the aircraft through the roof.

With full left rudder, it became impossible to engage nosewheel steering. Faced with hitting the arresting battery, I gave the aircraft one more kick of the left rudder pedal, and the aircraft turned hard to the left, narrowly missing the runway surface and the long-field arresting wire with the right wing tip.

We crossed back over to the left side of the runway at about a 30-degree angle, and the hook engaged the long-field gear, pulling us to a stop after we left the runway and came to rest in the dirt.

The next few hours were filled with blood tests and personal histories. The resilient S-3 engines survived the ordeal without FOD, and the damage fell below the Class Charlie cutoff.

The potential for damage, loss of the jet, and loss of life set in during the days that followed as I told the story to the ready room, emphasizing several points.

First, flying with a standard crew helps manage the risks, but when you have a non-standard crew (especially when there is a pilot in the seat where an NFO usually sits), you must be on your best game.

Second, live and die by your checklists. A few botched checklists will kill us, and the takeoff checklist is one of them.

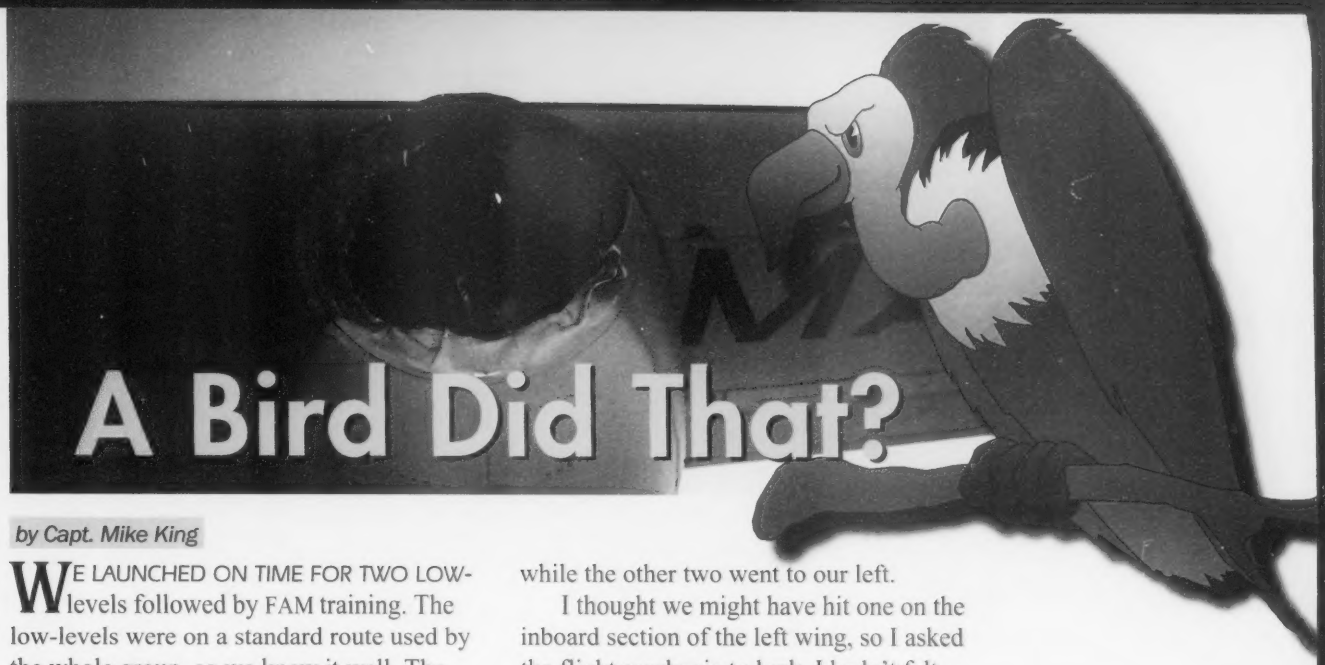
Third, when other aircraft are in the vicinity, and if time permits, always get one of them to check you out. This inspection might have kept me from losing all that blood at the hands of the flight doc late that night. It would have also kept me from getting behind on my FCLP requirements.

Fourth, know your aircraft's history. This aircraft had a history of anti-skid failures in the weeks preceding my flight.

Fifth, once you've made a decision, follow through with it. Even though we had decided the aircraft did not have a blown tire, we elected to leave the gear down and take an arrested landing anyway, because we weren't sure. We completed the arrested-landing checklist, but we did not use the procedures for "Landing With a Main Wheel Blown." The first step of this procedure is "Brake Selector Switch, Anti Skid Off."

There were a lot of things that could have prevented this wild ride, and most of them boil down to good crew coordination and good decisions in the cockpit. I tucked these away and flew smarter the next day.

Lt. Hewlett flies with VS-33.



A Bird Did That?

by Capt. Mike King

WE LAUNCHED ON TIME FOR TWO LOW-levels followed by FAM training. The low-levels were on a standard route used by the whole group, so we knew it well. The weather was great, and my student was ahead of the aircraft. We started the route at 1,500 feet AGL to avoid a small airport, then we descended to 1,000 feet. Everything was going like clockwork.

Past Raleigh, we moved over a large, sparsely populated river basin. We crossed the IP at 1,000 feet toward the simulated drop zone. The student copilot and navigator got us over the drop zone within five seconds of TOT. We came off the DZ, cleaned up, accelerated to 240 knots and continued our egress.

With three checkpoints remaining, all located in the river basin we had passed, we began seeing birds. The first flock was below us and rising. We avoided them easily by climbing. Once clear, we went back down to 1,000 feet, and shortly afterward, we encountered a second, larger flock. Although this bunch was a little closer, we avoided them, too. We now climbed to 1,500 feet for the rest of the route to try to stay clear of any other flocks.

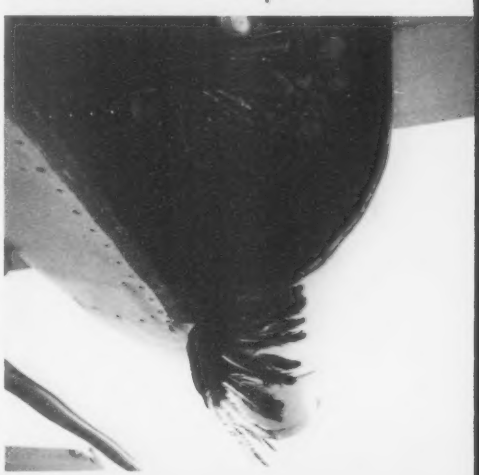
The angle of the sun reduced our visibility. We were approaching the end of the route when we saw three birds at close range, evenly spaced about 10 feet apart, directly in front of us. They seemed to bank slightly to our left, and I countered with a right bank. But I hardly had time to move the controls before they passed. One bird went to our right and appeared to go low while the other two went to our left.

I thought we might have hit one on the inboard section of the left wing, so I asked the flight mechanic to look. I hadn't felt anything, but I wanted to make sure.

"It looks like it," he reported, "I can see where he hit." That was an understatement. I looked over my left shoulder, even though I knew I couldn't see the inboard wing. To my surprise, I saw a hole the size of a beach ball in the front of the left inflight-refueling pod that hangs off the outboard wing. I slowed down immediately and climbed off the route. We obviously had to return to base, and we kept the airspeed low as we flew back to Cherry Point.

After landing, we discovered the bird, a black vulture, was still in the pod. He probably weighed 5 to 7 pounds. The amount of damage was amazing. We'd hit him with the front of the pod. I was glad he hadn't hit our windscreen.

...a black vulture was still in the pod.



Be aware of the terrain you're flying over, especially at low altitudes. The area can provide clues on the likelihood of a bird strike. We hadn't seen any birds until we reached the river basin, then we had three encounters in rapid succession. The basin wasn't a bird sanctuary or a wildlife area, but it made sense that birds would be there.

Capt. King flies with VMGRT-253.

The Good News Is I Get *Two* First Flig

I had wanted to fly Hornets for 10 years, and today was finally the day!

by Ltjg. Dan Hughes

It WAS 0415—TIME TO WAKE UP, shower, and get to the squadron for my first flight in the FA-18. We briefed at 0630, and I couldn't wait to strap in and fly this thing. However, I was feeling a little congested. Nothing I hadn't dealt with before, but just to be sure, I pinched my nose and cleared my ears. "That should be OK," I thought. I had wanted to fly Hornets for 10 years, and today was finally the day! I got to the squadron at 0530 to put up my briefing board, still feeling a little congested.

My instructor walked in at 0630, and after introductions, we got down to discussing the details of our flight. The brief covered two flights: my instructor and I were supposed to go out to the warning areas, complete the first event, then back to the field to refuel and take off again for the second "X." I thought this was awesome, my first time in the Hornet, and I would get about four hours of flight time.

We walked at 0830. I suited up in the paraloft, still feeling a bit marginal. We read the book, preflighted and strapped in. Everything went just like the simulator, and soon we were rolling.

Passing 8,000 feet en route to 15,000 feet, I felt a slight pressure in my right cheek. After a few seconds, it felt like my congestion loosened up a little. I figured I would be feeling 100 percent in no time. We continued to the warning area for the high work.

The high work went fine until we got to the last maneuver, the slow-flight dirty demo. This exercise shows how the Hornet handles in the approach configuration.

its!

At 18,000 feet, I reduced power and lowered the landing gear and flaps. As I pulled the throttle back, I felt a slight depressurization of the cockpit. Soon I was feeling pain in both my frontal and maxillary sinus cavities. Once we brought the power back up, the pressure in my head dissipated. I finished the maneuver and told my instructor about my discomfort and that I wasn't sure I would be able to complete the next flight. My instructor made sure I was all right and let me fly home. He told me to tell him the minute I felt any more pain.

Descending to 14,000 feet, I contacted approach. We continued down to 10,000 feet, crossing the beach. At about 15 miles from the field, they stepped us down to 6,000, then the real fun started. I started having sharp pains in my sinuses, and I couldn't clear my left ear. I told my instructor, and at the same time, approach called to step us down to 3,000 feet, the initial altitude. The instructor asked if I needed him to take the controls. I told him, "I'll be alright," as we continued our descent.

I called tower at the initial and started to step down to carrier-break altitude, but never made it. Passing 2,000 feet, the pain in my forehead was so intense I had to pass the controls to my instructor, who started to

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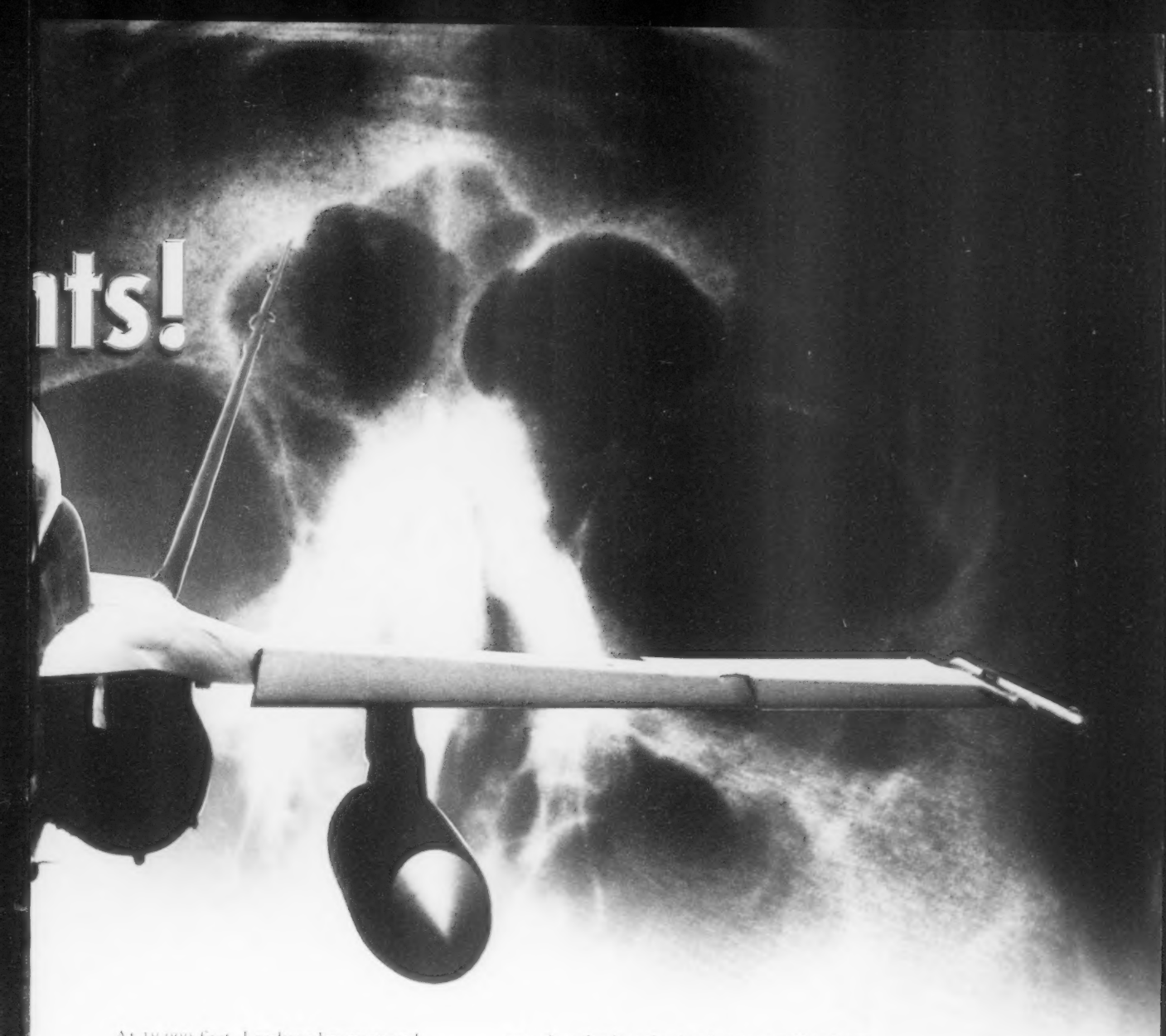
The high work went fine until we got to the last maneuver, the slow-flight dirty demo. This exercise shows how the Hornet handles in the approach configuration.



At 18,000 feet, I reduced power and lowered the landing gear and flaps. As I pulled the throttle back, I felt a slight depressurization of the cockpit. Soon I was feeling pain in both my frontal and maxillary sinus cavities. Once we brought the power back up, the pressure in my head dissipated. I finished the maneuver and told my instructor about my discomfort and that I wasn't sure I would be able to complete the next flight. My instructor made sure I was all right and let me fly home. He told me to tell him the minute I felt any more pain.

Descending to 14,000 feet, I contacted approach. We continued down to 10,000 feet, crossing the beach. At about 15 miles from the field, they stepped us down to 6,000, then the real fun started. I started having sharp pains in my sinuses, and I couldn't clear my left ear. I told my instructor, and at the same time, approach called to step us down to 3,000 feet, the initial altitude. The instructor asked if I needed him to take the controls. I told him, "I'll be alright," as we continued our descent.

I called tower at the initial and started to step down to carrier-break altitude, but never made it. Passing 2,000 feet, the pain in my forehead was so intense I had to pass the controls to my instructor, who started to

level off. Meanwhile, I felt as if someone was inside my head pushing out as hard as they could. My left eardrum felt like it was about to rip in half.

My instructor asked tower for clearance to spin just inside the initial. My forehead and my left eardrum felt like they were about to burst. The only thing I could do was massage my forehead and pray I did not damage anything permanently.

After leveling off, the pain once again dissipated. I told my instructor the pain was going away as he was lowering the landing gear on an extended left base leg. He asked if I could land the jet. I replied I was able and very willing.

Once the Hornet was dirty and the descent rate lessened, I had no pain at all. I did feel very congested.

We continued the approach turn to an uneventful landing and rollout. When we were back in the squadron ready room, my instructor canceled my other flight while I rushed over to see the flight surgeon.

Now the Bad News

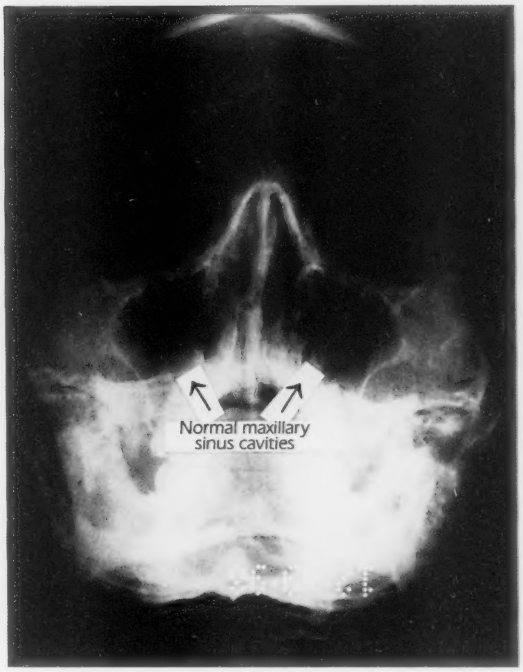
by Lt. Charlie Godinez

I WAS HOLDING SICK CALL WHEN A CORPSman knocked on my door. "Sir, there's a pilot who wants to see you, says he thinks he hurt his sinuses while flying." Sounded like classic flight surgeon stuff, but things are rarely that clean-cut.

"OK," I responded, "get his vital signs and medical record, and I'll see him next." I finished up with my patient, cleared my desk, and called for my next victim.

Lijg. Hughes walked into my office on his own. He looked fit and not in any obvious pain, but he definitely looked uncomfortable. With a slight nasal quality to his voice, he told me the story of his first

Figure 1



Hornet flight. He had landed just a half-hour before seeing me.

His story was indeed classic, right down to the "pilot's flight physical" he did upon waking up that morning. What this maneuver tells you is that you can equalize your middle ear at field elevation. It does not indicate what your ears will do at rapidly changing altitudes. And it doesn't predict anything about your sinuses. This pilot's story is the key to the diagnosis, and like I said, it's right out of the book.

During a physical exam, his left eardrum looked almost bruised. It was bulging and taut, with a dark, purplish fluid behind it. That's blood behind the tympanic membrane. Pressing on his frontal and maxillary sinuses caused no pain. When I shone a light through his facial sinuses to look for fluid, things looked normal (but some physicians disregard this maneuver as unreliable). One other finding was significant: having the patient lean forward by bending at the waist made the symptoms worse, a classic sign of fluid in the sinus cavity.

X-rays of the sinuses provides the final

Figure 2

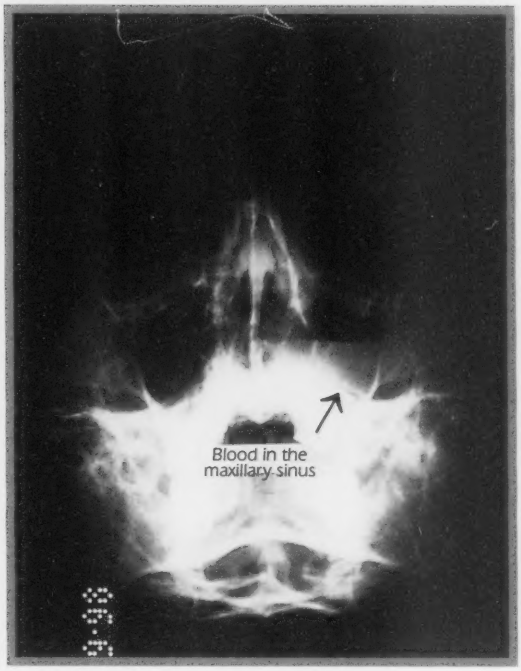
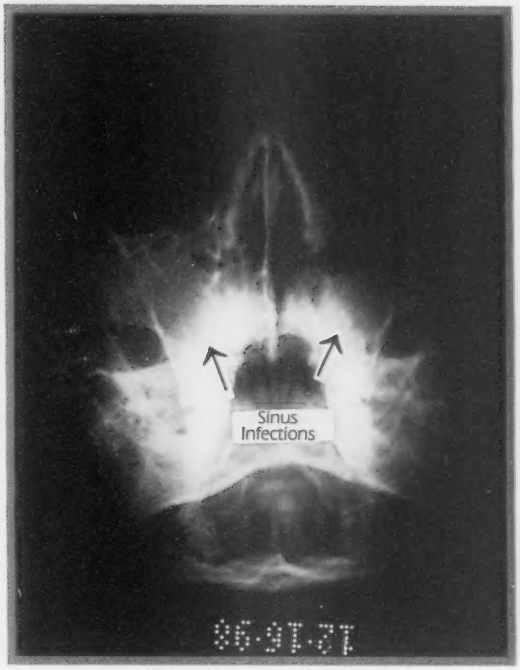


Figure 3



touch. The gouge for reading x-rays is to remember that "air is black." The sinuses are normally filled with air; hence, healthy sinuses should show up as black spaces on x-ray. Figure 1 is an x-ray of normal sinuses. Figure 2 shows Ltjg. Hughes' sinuses.

Because we live in environments where barometric pressures change, we must be able to equalize the pressures in our air-filled spaces. We have been given a means to do this by way of the Eustachian tube (for the middle ear) and the openings to the four sinuses, which drain into the nose and mouth.

Even in perfect health, the openings of the Eustachian tube and the sinuses are just a few millimeters in diameter. When we get sick, typically from a "minor" respiratory virus, the tissues around these openings swell, causing the openings to block off. The result is an airspace isolated from the external environment. When outside pressures (atmospheric or cabin PA) change, the isolated space can't respond, so structures try to give way and that hurts.

Nature abhors a vacuum, and if a vacuum persists long enough, nature will try to fill that vacuum with whatever it has available; in the case of the human body, that means blood. Once the vacuum fills, the pain dissipates. This explains why Ltjg. Hughes felt intense pain and pressure for 10 to 15 minutes, only to have those symptoms resolve and give way to a feeling of severe congestion.

But that's not the end of it. Blood is a great culture medium—protein, sugar, fats, red blood cells, bacteria love this stuff. And a serving of it had just been dumped into a space loaded with bacteria. A possible result: sinus infection (Figure 3).

This story does have a happy ending: no mishap, the patient responded well to antibiotics. As of this writing, he is back "up" and has resumed flight training. But we've all read about scenarios that ended in disaster. Had he avoided this episode and taken some time to get well, chances are he would have been ready to fly again in a matter of days, instead of the three weeks he spent med down.

Ltjg. Hughes is a replacement pilot currently assigned to VFA-106. Lt. Godinez is the flight surgeon for VFA-106.

CATM-9s in My

by LCdr. Ian Anderson

FIVE MILES FROM THE MERGE, AND already the hop wasn't going too well for my replacement pilot. We were flying a 2 v 1, VID, air-to-air tactics flight in our F-14As, fighting the always challenging, full-up F-16N from the local adversary squadron (remember those guys?). As our IP lead pushed it up to set up for a visual "mark" on the bogey, my RP started to get sucked while preparing for his five-mile hook. Nothing new there, a pretty typical replacement-pilot error. Grist for the debrief. But as the intercept progressed, our slightly sucked offensive combat spread was turning into a serious "combat left echelon" formation with miles of nose-tail separation between ourselves and lead. As a result, when lead merged with the bandit we were about four miles away. Predictably, my RP had the throttles up as far as they would go as he tried to fix the problem, and I was at least pleased to hear his "Tally one" just after lead's mark call.

From the back, I got a brief glimpse of the F-16N's planform as it pulled to take out the angles and lateral separation with us. When my RP adjusted his flight path to do the same, my tally disappeared behind his ejection seat's head box. Because of our gross separation from lead, the pressure was off the bandit pilot. He could make two neutral, 180-out merges happen and keep the Tomcats off his back for a while.

As our two aircraft went beak-to-beak with more than 1,000 knots of closure, my RP called out "left to left" over the safety-shot common frequency, but the warm and fuzzy that call gave me was diminished a bit when he noted over the ICS that the merge geometry still didn't look right.

With the F-16 still hidden by the pilot's head box, I asked my RP to re-call the pass and exaggerate his nose position to visually establish merge geometry. He did so with another call and a wing dip, further adjusting our velocity vector to the right of the growing speck in the center windscreen. I still couldn't see our opponent from my back seat, but I felt OK with what the RP was saying on the radio and doing with the jet. That is, until his ejection seat head box sprouted wings and CATM-9s on either side.

In situations like this, it is said that time seems to slow down for the people involved—and it does, almost like the near-death scene from the movie, "Planes Trains and Automobiles." The F-16's nose and fuselage appeared over the top of

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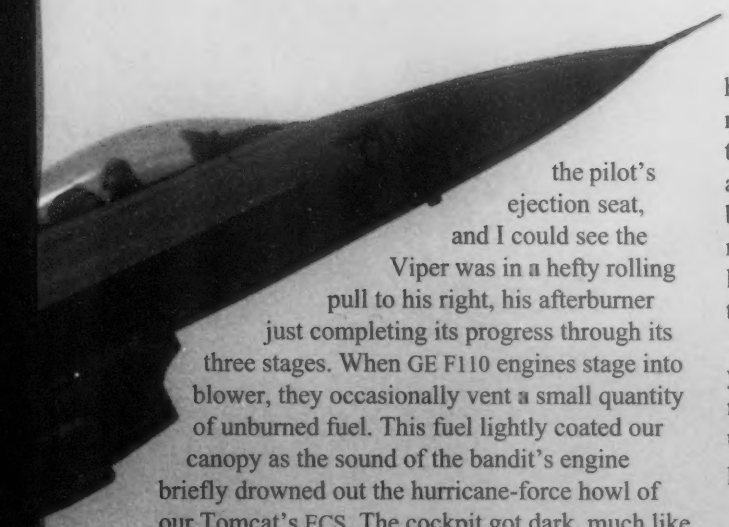

the pilot's ejection seat, and I could see the Viper was in a hefty rolling pull to his right, his afterburner just completing its progress through its three stages. When GE F110 engines stage into blower, they occasionally vent a small quantity of unburned fuel. This fuel lightly coated our canopy as the sound of the bandit's engine briefly drowned out the hurricane-force howl of our Tomcat's ECS. The cockpit got dark, much like it would if you were flying during a solar eclipse. Then the Viper was gone.

After a few expletives and a "knock-it-off," I took my RP home.

After orbiting in the warning area until his hands and knees stopped shaking, we came back to a straight-in approach.

We reviewed our HUD tape, and I estimated the last-ditch, rolling pull drove the Viper from a low-target-aspect collision course to a slightly high left-to-left pass, missing us by about 50 feet.

Debrief with the adversary pilot (and a review of his HUD tape) revealed his perspective was a mirror image of ours. Because we were high and to his right after his merge with the lead F-14, he assumed a low-to-high, right-to-right pass would be the obvious outcome. A right-to-right was the flow generated by the geometry involved, and he could not reconcile the left-to-left call by the RP.

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First, listen to your opponent's calls. They tell you his intentions, which he is probably already making. If you don't agree or think the call is unsafe, either speak up and establish the proper pass geometry, or clear and call a knock-it-off.

If you are approaching a merge and your opponent isn't drifting away from your velocity vector, you are about to have a close pass. If the speck isn't drifting at all, you are about to collide. Don't give away angles or separation, but make the pass happen safely. It is training, after all.

For RIOs and WSOs: Our jet had a marginal radar, not surprising for the F-14A, especially an FRS bird. This reduced my SA to what I could see out the front, which isn't much when the jet goes nose-on to its opponent. But if your mental ACM "clock" is telling you that you should be seeing a jet appear around the head box, speak up. I could have been more directive a few seconds earlier, rather than just asking the RP to re-state the pass geometry.

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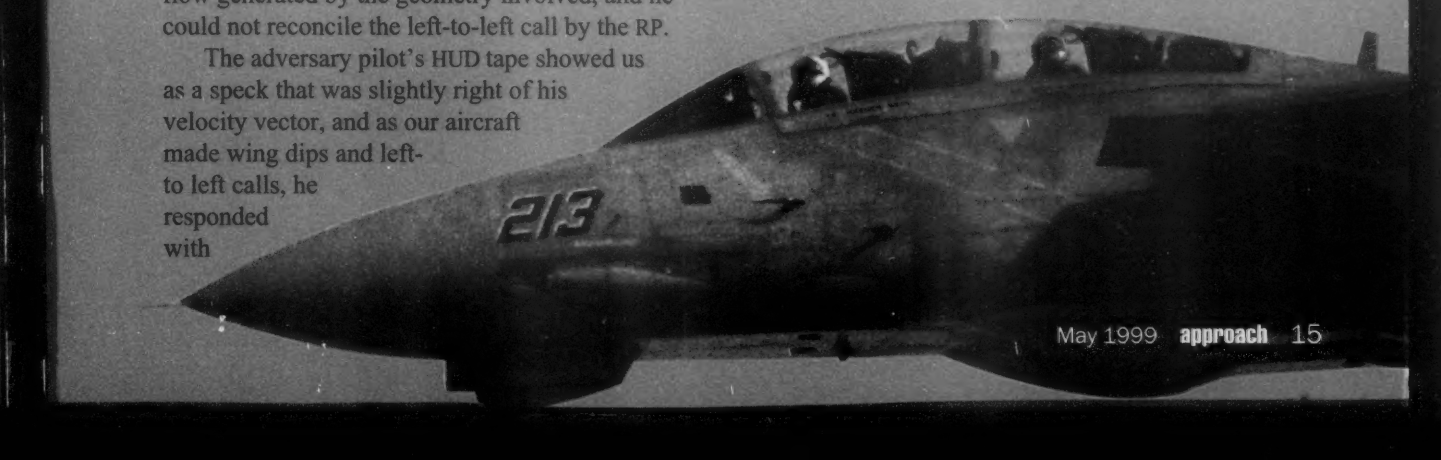

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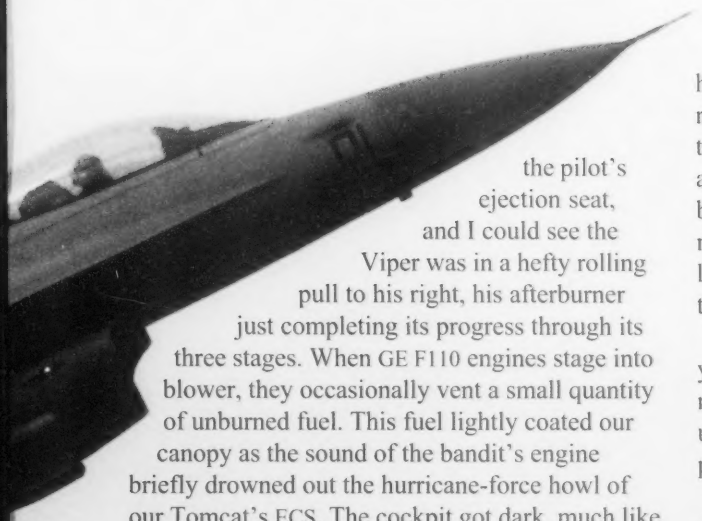

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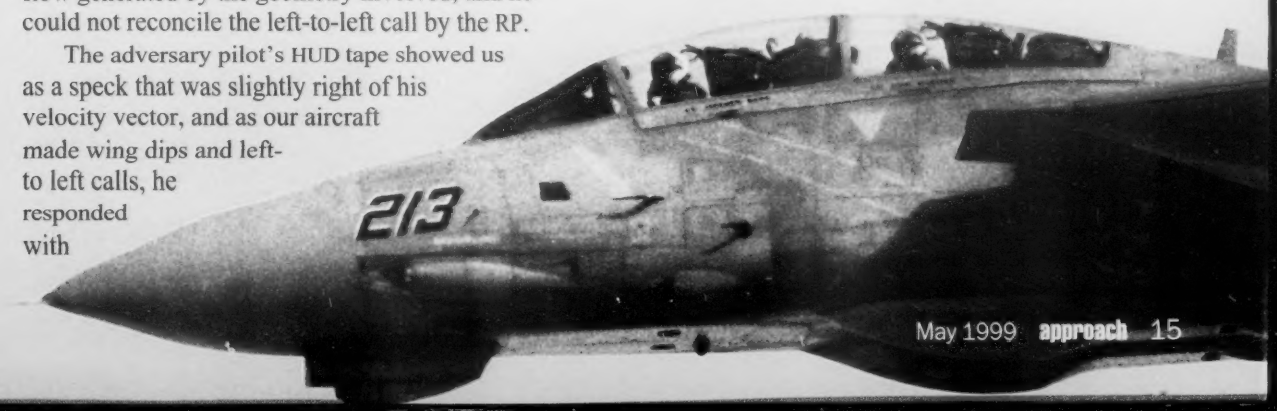

Nearly Tackled on the

by Lt. Christopher Rew

ABOUT AN HOUR INTO OUR MARITIME-INTERDICTION flight, mother told us to head south to pick up a part that was needed aboard (an overhead was being coordinated). We raised our destination on the radio about five miles out, and they said they could not receive us yet because of a concurrent vertrep-conrep with a supply ship. Just as we settled in to wait our turn, the master-caution light came on.

Both the HAC and I caught the flicker from the master-caution light and an amber light from the main caution panel. It was so fast we couldn't read it before it went out. A test of the caution panel gave us the chance to read it more clearly: No. 1 engine chip.

I promptly made a U-turn to head for mother, while the HAC broke out the checklist and told both mother and the helo-control officer on the frigate about our problem. Mother was 15 miles away, while the frigate and supply ship were five miles, but the near decks were still fouled with supplies, and we knew our deck wasn't. We headed home.

All the gauges were normal. We had no secondaries. Mother was rapidly setting flight quarters, and we only had another 10 to 12 minutes to go. Everything was looking good, except for that bothersome little chip light, which continued to flicker intermittently—never on for more than a half-second and often gone for a half-minute—and no secondaries. I decided it must not be that bad, just some nuisance fuzz. Sure, that's what it was.

En route, we reviewed our checklists again, re-examined our decision about when to land, and re-briefed the response to a single-engine failure, with emphasis on short final. We were closing on mother every second. The frigate tower called to give us a green deck as we reached the 10-mile mark—halfway—we continued to press. The distances were equal, and we preferred to go for a familiar deck. Still no secondaries.

We got the numbers and a green deck about one mile out on a left base. Just as we did one last landing-check review and rolled out on final, the No. 1 engine stopped. Np, Ng, and engine-oil pressure dropped to zero, caution lights lit up, and TGT went through the roof. I managed to call, "Engine failure!" before moving on with the immediate-action steps.

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One-Yard Line

The HAC completed all the steps that required hands off the controls. I was thinking, "We just had an engine failure!" while managing to stay calm and doing everything by the book.

With immediate steps complete, I turned for a new downwind and told deck that No. 1 engine had failed. We completed each step of the single-engine failure checklist and finished with single-engine landing checks, pausing on each step that required a decision—namely: "external cargo, stores, and fuel-jettison as required"—to allow for dissenting opinions. There were none. We all agreed we were fine without jettisoning our five sonobuoys, chaff or any of our 2,800 pounds of fuel. In retrospect, we should have dumped some gas to lighten the load, but we had all agreed to that decision.

With single-engine landing checks completed, we found we had plenty of torque. As I turned us back to final, our aircrewman (who was, by now, cinched into his seat more tightly than you would have thought possible) said, "OK, deep breath, everybody. Let's make sure we covered everything and are comfortable."

"Good call," I thought.

"We're ready," we all reported. I took a moment to request updated relative winds from the LSO.

"Seventeen knots, ten degrees to port" he replied.

For an instant, I thought, "The winds should be higher than that," but quickly focused on flying the approach.

We decelerated right through translational lift—never felt it—and ran out of torque half over the flight deck and half over the missile deck (you guessed it: heavy helicopter, not enough wind). Our ace in the hole was that we were still on a high glide slope, as intended. I kept the forward movement in and, voila, we were on the flight deck with one yard to spare between the tailwheel and the deck edge (36 inches from an unpleasant experiment on what happens when you land a helicopter on a Sea Sparrow launcher). All we had to do then was sit there, hearts racing, with reality sinking in, the adrenaline draining off, and waiting for the rotors to spool back up enough to reconnect the generators.

I learned a valuable lesson from this experience: What to do and not to do if this emergency ever occurs again while I'm at the controls.

Jettison ordnance. Don't save Uncle Sam 250 pounds of sonobuoys and chaff and 2,000 pounds of fuel that could save your life by being float-checked. That weight could have made our landing much safer and allowed for error, which our chosen configuration obviously did not.

Pay attention to relative wind. Get the best winds over the deck. This was a "land as soon as practicable" emergency for us SH-60B folks. You don't want to spend much time flying around with a broken helo, but in this case, I almost got us into more trouble by proceeding right into the landing. We could have used 20 to 30 knots of wind to help with translational lift, especially if we had lightened the load. This is a lesson for all LSOs, too. Your pilots will be quite busy and may gloss over it like us, so get the OOD moving! And dets, teach the OODs from the get-go what you expect from them in an emergency. It may save your life (or at least prevent you from having to write about how stupid you were in an article for your entire warfare community to read).

Aircrew coordination pays. We took each step of this event as a crew, making decisions as a crew. Everyone communicated clearly, ensuring all maintained situational awareness. The ACT class can be terribly dull, but the principles work.

Know your emergency procedures. We did them by the book, and they worked. It's easy to relax between NATOPS checks, but I don't recommend it.

Do your air work by the numbers. Practice, practice, practice those single-engine landings to a spot every chance you get. You can even simulate them while deployed by simply limiting your dual-engine torque to 60 percent on final, and mentally subtracting 2 percent Nr for every 1 percent torque above the limit. If you pull 70 percent torque, then you've simulated reaching 80 percent Nr, and theoretically, you're swimming. It's much better to learn "theoretically" than for real.

Postflight inspection revealed a chip detector filled with metal strips and chunks. One of our engine bearings had eaten itself, causing the engine to seize. The chip light should have been as bright and steady as the sun, but it wasn't. So, trust your instruments, but be willing to accept the worstcase scenario even when all other indications are that your aircraft is working fine. That may give you the chance to get your aircraft comfortably on deck, with more than one yard to spare, before something vital decides to give you a thrill you didn't ask for.

Lt. Rew flies with HSL-48.

CATM-9s in My Window continued from pg. 15.

While the bandit driver may have believed the RP was not adhering to this training rule, the relative geometry perception from each cockpit caused the two pilots to follow the same training rule in the opposite manner. One option might have included establishing vertical separation earlier to create more of a high-low split approaching the merge. Finally, classic bandit "don't hit me" wing dips at 1 to 2 miles might have helped here also. Clearly, the big training rule violation for this flight was "500-foot bubble around all aircraft."

If you are fighting a nugget or RP, remember their bucket is probably full. Call your 1-v-1 merges, establish geometry early, and "drive defensively" any time the jets are close to each other.

This was the closest pass I had in my three-year tour as an instructor RIO. It wasn't the only one, but it was the only close pass I had with a professional adversary driver. Like this one, most of the others came on 2 v 1 hops, but the close pass occurred with the lead F-14. RPs tend to flock toward the IP's position (usually where the action seemed to be) and mine got in lead's way as he maneuvered his jet.

Usually, the last thing an IP is concerned about is his wingman getting between him and his opponent's control zone, and yet it can and does happen at the FRS. ACM training is one of the most risky and demanding things we do in a jet. Stay focused and alert to the cues, and you can manage those risks while getting the most out of your training flight.

LCdr. Anderson now flies with VAQ-128.

OPNAV 3710 Test 1 Answers

Solution to the crossword puzzle in the April issue.

by LCdr. Frank Mellotti

Across

1. Who writes OPNAV?
2. Custodian who must approve takeoffs or landings at closed fields
7. Do you change the time zone letter on yellow sheet for daylight-savings?
8. Waiver authority for physical standards
11. Abbreviation used on form to describe initial type of physiology training (two words)
13. Possible NATOPS grade
15. EA-6B controlling custodian
18. V-22
20. Now required by OPNAV 3710
23. Mandatory
24. NATOPS jacket must be reviewed when?
26. Route of flight established by users and ARTCC identified by coded name
27. Special operations personnel
30. Optional
31. Prohibited if you wear oxygen mask routinely
33. Required equipment
34. One type of precision-approach category
38. Kind of pilot who can take off in any weather
39. Pilot gets one if he lets instrument card lapse (Navy)
40. Heat required for flight by 3710
41. Do not perform these maneuvers in Class B, C, or D airspace

Down

1. Flight that doesn't remain in local flying area
3. Number of 3710 wickets to meet for cross-country
4. Manual update often initiated by an urgent-change recommendation
5. Current version of OPNAV 3710.7
6. Noise-sensitive farm
9. Sunset type used to describe lighting requirements
10. Must not change on stopover flight plan and
10. Assigned responsibility for safe and orderly conduct of the flight
12. Your logbook is your _____ property
14. Intake duct must be declared _____ (two words) before starting
16. One agency that validates approaches for DOD use
17. Strange word used to describe fuel purchase exemption
18. Products prohibited in all Naval aircraft
19. DD 365-4 originals shall be retained for X months
21. Official document of pilot history (two words)
22. Chapter that directs pilots to "aviate, navigate, and communicate"
25. Who must approve our instrument ground syllabus?
28. Greenie board foe
29. Cross-country callsigns must be IAW
30. Military assumes responsibility for separation of aircraft
32. Type altitude for fuel jettison (non-emergency)
35. Number of deviations from FAR part 91 permitted by 3710.7
36. Duty in a flying status involving operational or training flights
37. Bad set of orders
38. Whose 5720.44 instruction to consult before participating in a celebration

Too Cool For School

by Lt. Peter Courtney

ANOTHER TOPGUN IP AND I WERE GOING to fly Red Air for a 4 v 8 in an F-14A. It was a day, VFR, shore-based, Red Air flight, banker's hours (0945 brief) with one of four VF pilots I'd flown with regularly in the last two years. Weather was typical for Fallon in the summer—clear as a bell, 95 degrees with about 20-percent humidity. The only thing we should've had to worry about was saving enough of our 20,000 pounds of gas for the post-mission 1 v 1.

From brief to weapons checks, everything went as planned. We were flowing east into the NSAWC ranges, about 50 miles from NAS Fallon, when the oil pressure on the right engine went to zero. We immediately turned west for the field and broke out the PCL. The pilot set the right engine to 78 percent, which would minimize friction on that engine. We turned on the dumps and told our wingman that we didn't need any help and would go back as a single.

The checklist called for securing the engine when oil pressure was less than 30 psi. We secured the right engine (our combined eight years of Naval Academy education reinforcing our belief that zero was, in fact, less than 30).

SE cruise procedures walk the aircrew through balancing the fuel system to get fuel out of the now-unusable right side of the aircraft. You have to closely monitor the fuel system, because a malfunctioning valve could send fuel on a one-way trip to the unusable side, cutting your range and setting the stage for asymmetry problems. We were 38 miles from the field, dumping down

from 16,000 pounds. We were at MIL on the left engine to get on deck as soon as possible. We chose to bypass single-engine-cruise procedures and go right to landing procedures. We discussed taking an arrested landing but decided against it. The combined-side hydraulic system (the "main" side in the F-14, driving the brakes and most of the other gear) runs off the left engine, and both hydraulic systems were holding through the operation of the bi-directional transfer pump (bi-di). We also didn't declare an emergency, although we did tell approach we were single-engine.

At about 10 miles from the field, we secured the dumps with about 5,800 pounds remaining, with 2,000 pounds in the left and 3,800 pounds in the right feed group. With our loadout of two tanks, two weapons rails, a CATM-9, and a TACTS pod, we weighed 52,000 pounds. Computed on-speed from the PCL was about 126 knots, and for single engine, NATOPS dictates a 12-unit pattern with 14 units on final.

With everything apparently going normally, we were cleared for a non-arrested landing on the 14,000-foot left runway.

We had been in a leisurely descent with the left engine at idle, losing about 10,000 feet over the last 30 miles. As we began to sweeten up what had basically been a 30-mile straight-in, we quickly realized we couldn't stop descending. If we'd had a caution light that told us we were too heavy and asymmetric to make this single-engine approach to a 4,000-foot field on a 95-degree day with a density altitude of 7,000 feet, everything would have been instantly clear. Unfortunately, and understandably, no one at Grumman, Pax, or Point Mugu had had that foresight.

From the back seat, the first indication of trouble was when I saw runway 31L's threshold because the pilot had increased thrust on the left engine to arrest our descent. As it became obvious we would be lucky not to hit the ground, much less make a controlled landing on 31L or 31R (or taxiway Alpha for that matter), he took out rudder to increase lift.

We flew over 31R and toward the ordnance farm, leveling off at about 100 feet. A Hornet was in the hold-short between the runways when our Grumman overcast put him in the shade. The pilot asked for an immediate release. Later in the ready room, he said, "I watched that first pass, and I was sure not going to stick around for your second shot at it."

I asked on ICS, "What have you got?" Silence from the front seat—never a good sign. Every mishap report I ever read flashed through my mind. Flap asymmetry, loss of the left engine, wing asymmetry, stuck spoilers. Why weren't we flying?

This time, he replied, "I got it." With the landing gear up and max AB selected on the left engine, we started climbing—just barely.

Once more, I asked, "What are we doing?" This time, he replied, "I got it." With the landing gear up and max AB selected on the left engine, we started climbing—just barely. We called a waveoff, and tower, which had remained silent, cleared us to delta overhead at 6,400 feet. We declared an emergency and told them our current altitude of 5,200 feet would be it.

Once cleaned up and on downwind, the pilot told me that as he increased AOA up to 14 units (single-engine max), he continued through 15 units (dual-engine max) and up to 17 units (the actual design approach speed of the F-14, although too close to stall margin to be used regularly), because the aircraft kept dropping like a rock. We'd been too heavy and had a big enough fuel split to cause an asymmetry problem. Then we discovered an additional 1,200 pounds of fuel in each wing that had not been reflected in either totalizer. While symmetric, it helped make us too heavy.

With an adrenaline-induced, record-setting pace, we blazed through the fuel-balancing. We decided not to dump, because we were over the base, and our burner

waveoff, (albeit single-engine) had done a great job of getting rid of that excess JP-5 we had been carrying around.

After an extended downwind, we turned base and prepared for round two, electing to trap this time. We figured the chances of a blown tire, hydraulic failure, or brake failure were greater than zero. As it turned out, the bi-di that had been powering our flight-side hydraulics failed on short final.

Compared to everything that had happened so far, any landing that involved me using the ladder to leave the aircraft would have been uneventful. With both our gross weight and asymmetry reduced, we flew a comfortable 150-knot approach to what surely would have been an OK-3 (which is pretty hard to do flying the VASI).

Later, we found oil covering the right side of the aircraft from a burst line, but the engine hadn't seized. The aircraft and engine were flying the next day.

The following items stand out as points to be analyzed. While directly related to the F-14, many of our decisions and actions have parallels in other aircraft.

Why not shut down the engine right away? With zero on the oil-pressure gauge and the accompanying caution light, it seems like the obvious thing to do, but loss of oil pressure is not an immediate-action procedure in the F-14 PCL. Immediately securing an apparently working engine would also mean that you couldn't restart it. We decided to refer to the PCL first. NATOPS does point out that an accompanying OIL HOT light signals an impending catastrophic engine failure.

The decision not to declare an emergency was similar to our decision that we didn't need a wingman. We figured we had this thing suitcased.

In our current environment (day, VFR, shore-based), a single-engine approach was much more palatable than it would be during a Case III at the boat. Given our scenario, an immediate shutdown would have been more prudent. On the good side, either because the pilot set 78 percent immediately, resulting in a slow migration of oil from the engine, or the fact that we did not delay shutdown too long, the engine suffered no further damage.

Why not grab a wingman for a visual inspection? You may not always have this opportunity. In this case, with seven other bandits, we certainly could have made it work. The main reasons we did not ask for an aerial inspection were our desire to land ASAP, wanting to not deal with a joinup and visual inspection, and our belief that we had the situation in hand.

Although it would not have mattered here, a visual inspection most likely would have revealed the oil over the right side of the aircraft. Had we been in a more demanding environment, we might have considered relighting that engine for the approach. (With the box that we put ourselves into, even in our condition, we could have used the thrust.) Knowledge that we did in fact, lose engine oil and did not have an indicator failure, would have kept us from a disastrous attempt at relighting the right engine.

What about single-engine landing vs single-engine cruise procedures? In hindsight, we should have balanced the fuel. Real-time, with an unknown engine failure, we decided that our best course of action was to land ASAP. NATOPS does not define the cutoff between cruise and approach, other than by the name of the procedure. Very similar is the distinction between "possible" and "practical" after the phrase "land as soon as…". At 38 miles from the field and 12,000 feet AGL, we considered ourselves on the approach.

The decision not to declare an emergency was similar to our decision that we didn't need a wingman. We figured we had this thing suitcased. Also, with no air wing, SFARP, or FRS dets going on, the Topgun missions were the only major flying in town at the time. Besides a lone AV-8B, we were the only aircraft even up approach. Whereas

the visual inspection might not have mattered much, the decision not to declare an emergency would have.

Fallon had three open runways, and no fuel-critical aircraft were ahead or behind us. There was absolutely no reason for us not to declare an emergency.

As mentioned earlier, there was an FA-18 between the duals waiting to launch on an FCF. With us cleared on the left, tower would have been perfectly justified releasing that aircraft on the right. With our uncalled, unintentional, and unstoppable sidestep approach from 31L to 31R to route 50, the Hornet was much safer where he was. The tower controller's prudence kept that aircraft on deck where it should have been. We had accurately described our condition to approach when they wisely asked us if we had a problem, seeing as we were RTB 10 minutes after takeoff.

The Navy bought Tomcats to launch and recover at sea. Whether based at Oceana, Miramar, Cecil, Lemoore, or Atsugi, we are born and bred in a near-sea level environment. A 52,000-pound, single-engine F-14A with a 2.0/3.8 split would not have been as big a deal at Oceana, but, with a density altitude of 7,000 feet and temperatures at 95 degrees, it was.

The RIO can call up a display in the rear cockpit that gives AOA, VSI, and a RADALT reading, all of which are normally not present. With the typical flying we do at Fallon, I don't normally select this display, but this was not a normal approach, and I could have helped the pilot more had I been watching those parameters. NATOPS does address the criticality of AOA on single-engine approaches, and two sets of eyes here would be better than one. (Considering myself a quick learner, you can bet where my eyes were glued during the second approach.)

Regarding auxiliary instrument scan and procedures, the fuel in the wings hurt us. The wing fuel had pretty much stayed where it was once we had turned the dumps on. We were airborne for only about 20 minutes at the time of the first waveoff and had just not burned down the wings very much. The totalizer should have reflected this amount. We did a full fuel inventory on downwind, and by selecting Override on the Win/Ext Fuel Transfer switch, we made sure we got the fuel out of the wings.

Checklist procedures proved their worth when we followed the single-engine landing checklist. The PCL advises to select the Back-up Flight Hydraulic system to High (landing mode) while on the approach, regardless of the current state of the main hydraulics as a precautionary measure. We did lose the bi-di pump and flight-side hydraulics on final on our second approach. While the combined side maintained the load, and there is an auto activation feature on the Back-up Flight Hydraulic system, it is good to know we were well backed up. I mean, hey, wasn't the right engine-oil system designed to operate the entire flight? Wasn't the totalizer supposed to be accurate? Wasn't the bi-di supposed to maintain pressure to both hydraulic systems? I had rapidly become a cynic.

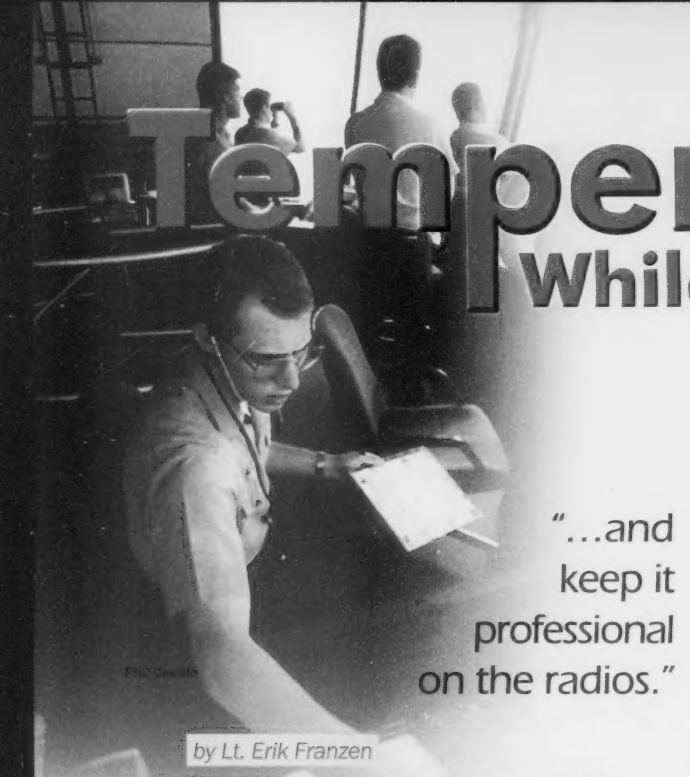
Lastly, the late failure of the bi-di validated our decision to trap on the second approach and dramatized our poor judgement not to prepare for this on the first. (Not that it would have mattered; we were low but not that low.)

There's no replacement for basic airmanship. Many aviators have ejected from perfectly good aircraft because they couldn't tell what was happening. We experienced about 10 seconds of this confusion as we tried to ascertain why this aircraft would not respond. With the ground approaching, the pilot fought the natural desire to pull the stick back more and instead, at about 200 feet AGL, bunted the nose to break the AOA as well as taking out some rudder.

Maybe it was proof that all that time spent on max-performing the F-14 and L/D max considerations do have application outside the BFM arena. So much for part-task training.

Lt. Courtney flies with VF-32. At the time of the incident, he was a Topgun instructor.

Tempers Flare While Holding Short



"...and keep it professional on the radios."

by Lt. Erik Franzen

WE'VE ALL SAT THROUGH THE FCLP brief countless times. During the "radio procedures and discipline" part, our LSOs always brief "...and keep it professional on the radios." Why we do this is rarely discussed. I learned one night why it is important to "keep it professional" on the radios.

Our squadron was almost finished with work-ups, and we were conducting night FCLPs at a West Coast air station. As we pulled up to the hold-short, we saw a Hornet at position and hold, awaiting clearance. I called for takeoff into the FCLP pattern assuming I would have to wait for the Hornet to go first. To my surprise, tower cleared me for takeoff and told the Hornet to taxi off the duty runway because they were still awaiting his clearance.

The Hornet taxied off, and I took the runway and launched. Another one of my squadronmates approached the hold-short, called for takeoff, and was also cleared ahead of the Hornet.

As I was flying my passes, I monitored tower frequency. After a few minutes I heard an exchange between tower and the Hornet pilot that went something like this.

"Hornet___, position and hold."

The Hornet driver sounded very upset: "That's what I asked for, position and hold!" The pilot must have been annoyed at having to use so much gas while waiting for his clearance as he watched us take off in front of him. OPNAVINST 3710 used to say jets could receive priority taxi, takeoff and landing clearance over props, but the pilot of the jet had to request it, and it had to be necessary. In the newest edition of 3710, this section has been completely removed. In any case, tower replied, "That's what I gave you, position and hold!"

Finally, our unhappy Hornet aviator identified himself as an O-5 and told the tower to expect a call when he got back. This last response must have rattled the controller. For the rest of the evening, he made a number of potentially disastrous calls. The worst one was giving paddles a "clear deck" call (permission for paddles to resume FCLPs after an aircraft has made a full stop) while I was on short final even though the E-2 that has been a full stop was still on the runway. My squadronmate on the runway called tower and told them it was still a "fouled deck."

As I drove home that night, this thought struck me: As aviators, we are trained to "compartmentalize," put things behind us and continue to do our jobs. However, I am not sure if the same is true for controllers. The O-5's threat seemed to affect our tower controller's performance that night. Did having to wait affect the Hornet pilot's flight that night, and was it really necessary to threaten the controller?

I now have a better understanding of why, regardless of rank, we must keep it professional.

Lt. Franzen flies with VAW-117

LESSONS LEARNED

He Pushed It Too Far

by LCdr. Dave Clark

AN FA-18C WAS IN A NOSE-UP attitude and climbing when it pancaked into a 4,500-foot ridge and disintegrated, killing the pilot.

The first-tour pilot had deployed from Florida for air-wing weapons training and had arrived at a western base the day before the mishap. He then was scheduled as lead for a section NVG-CAS sortie the following evening under ground FAC control.

He launched on time, rendezvoused with his wingman, and circled the target range twice before proceeding to the IP. On push, he was late for TOT. To catch up, he accelerated well above briefed ingress speed. On the pop, the Hornet reached the apex 1,200 feet below briefed altitude and more quickly than planned.

The dive was steep, and, having entered no altitude-warning cues into his radar altimeter, he passed below minimum altitude while still trying to acquire a tank hulk. The pilot did not [illegible] ordnance and began a normal pullout profile. Three seconds before the crash, he made a G-limiter pull. The Hornet cleared the target but struck the ridge.

Lessons Learned:

1. Can-do and overly aggressive attitudes are inspiring but also can be deadly. In training, there's no shame in slowing down or in starting over if you feel you're falling behind or if the mission is not going as briefed. Don't push it unnecessarily for pride or ego's sake. If you do, it may the last time you try to prove how good you think you are.
2. Checklists (such as combat, air-ground and penetration) are there for a reason. They remind us of some of the more mundane and perhaps forgettable, yet extremely important safety backups, such as radar-altimeter settings. Use all your checklists, and check every item on each one.

LCdr. Clark is an aircraft-mishap investigator with the Naval Safety Center.

POP-UPS

Edited by LCdr. Mark Enderson. Contributors can contact him at (757) 444-3520 Ext. 7245 (DSN 564). E-mail address: menderso@safecen.navy.mil

Passenger Anti-Exposure Survival System (PAESS) for CODs and VODs

In 1996 the Navy introduced a Passenger Anti-Exposure Survival System (PAESS) to the fleet. Designed as a cold-water protective garment, it is a dry suit for passengers traveling from ship to ship, ship to shore or vice versa.

The PAESS is a "one size fits most system," and is equivalent to a size-12 dry suit. There are adjustment straps on the outside of the suit to make it fit better. Inflatable mittens and a hood are part of the ensemble. There are currently 1,450 PAESSs in the fleet.

The PAESS, though, has had some problems: Material shortages, a reluctance in the fleet to fully implement the system, reports of water leaking around the neck and wrist seals, and the suit's inability to purge trapped air (making underwater egress difficult). Like aviator dry suits, the PAESS is hard to put on, and improper wearing of the system has caused leaks. For example, some individuals have erroneously worn their shoes inside instead of outside the PAESS boots, causing abrasions and holes in the material when it contacts the nonskid.

Because of these problems and fleet resistance to using the PAESS, the Navy is now looking for a commercial, off-the-shelf, anti-exposure suit as a replacement. If a suitable commercial substitution is identified, suits will be available for fleet trials in the winter of 1999-2000. The Naval Air Warfare Center, Patuxent River, is conducting the search.

HUD Damage Prevented

The staff at NADEP North Island has developed a new protective cover for the FA-18 combiner-glass assembly that could save the Navy as much as a million dollars in repair costs next year.

"The glass was being chipped, scarred, cracked and broken at an alarming rate," according to Sherwin Delacruz, logistic management specialist at NADEP North Island. About 30 per year were being damaged, often during the removal process. Moving the HUD assembly from one maintenance level to another also made it more susceptible to damage, mainly because bubble-wrap doesn't provide sufficient protection.

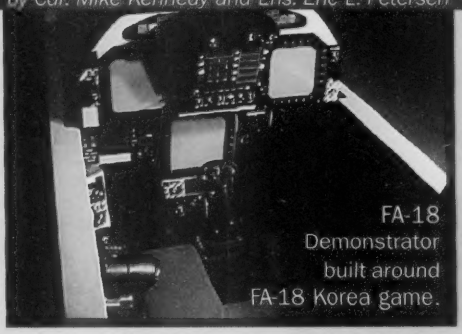
The glass repair by the vendor on these assemblies costs between $30,000 to $50,000 each.

After studying numerous materials, the staff at North Island Depot created a cover of Naugahyde lined with neoprene, which "fits like a sock, covering both the front and back of the glass," Mr. Delacruz noted. AIRLANT is the supply source.

Off the Shelf and Into the Fleet: An SNA's Idea Promises Big Dividends in Flight Training

by Cdr. Mike Kennedy and Ens. Eric L. Petersen

Ens. Herb Lacy, a CTW-4 student naval aviator at NAS Corpus Christi, wanted an edge as he began his flight training. With the help of an off-the-shelf Microsoft flight-simulator program and software add-ons he developed, he found the edge he was looking for... and he never had to leave his keyboard.



FA-18 Demonstrator built around FA-18 Korea game.

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The Navy had been looking at ways of bringing today's computer-game technology into the current generation of simulators. The Chief of Naval Education and Training (CNET) is working with the Naval Air Warfare Center's Training Systems Division and the University of Central Florida's Institute for Simulation and Training, to develop, implement and evaluate PC-based games and simulations. This is part of the Micro-Simulator Systems for Immersive Learning Environments project. The project began 20 months ago when CNET's assessment division took a look at how simulation was being used in training as a whole. They began looking for some type of low-cost, highly accessible and deployable simulation systems to complement existing training programs.

The Navy needs flight-training tools that can help pilots practice perishable skills on demand, even while on real-world operationals.

After investigating the simulators already in use, CNET's staff asked, "What is commercially available?" After one look at the capabilities of flight-simulation programs developed by commercial gaming-software companies, CNET was convinced these products could help aviators learn certain types of skills. This technology offers an affordable way to improve basic skills, sharpen pre-existing skills, and allow aviators to practice tactical thinking every day.

Commercial game developers spend between $800,000 and $2,000,000 to develop a successful product, and the Navy can reap the benefit of being part of the mass market that makes these products so inexpensive.

CNET recently procured two prototype FA-18 "micro-strike" cockpits to demonstrate what is possible with off-the-shelf technology. The prototype units approximate the dimensions of the FA-18E/F cockpit shell, and the instruments, side rails, auxiliary panels, and center console are based on photos of the FA-18C and FA-18D. The simulation environment is provided by Graphic Simulation's "FA-18 Korea V3.0" simulation program. Up to eight of these cockpits can be networked with pilots communicating by aviation headsets to practice 1 v 1, 4 v 4 and 2 v X scenarios for NAS Fallon. Cockpit switches and hands-on throttle and stick operation can be programmed up to the limits of the game software.

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Over the past 10 years, NAWC's training systems division has conducted extensive research on the use of PC-based simulator systems in training aviation-teamwork skills. This research shows these PC-based systems foster teamwork skills with the new simulators.

The research also suggests that this type of device could be used in the fleet to support aircrew-coordination skills at a minimum, with potential to sharpen tactical thinking skills by having a tool available that permits multiple players to interact in a networked mode.

While these types of devices won't replace the more familiar (and extremely expensive) mission trainers and simulators, they hold great potential as low-cost, highly accessible tools to give naval aviators the edge they need to fight and win.

Cdr. Kennedy is an H-46 pilot and deputy director of CNET's assessment division. Ens. Petersen is assigned to CNET's Public Affairs Office.

Pop-Ups

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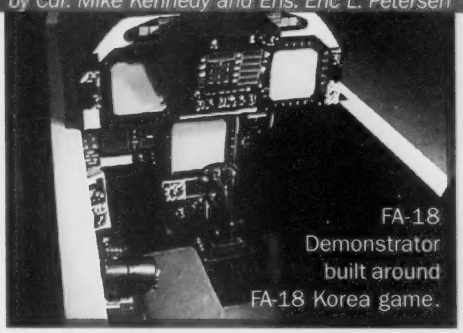

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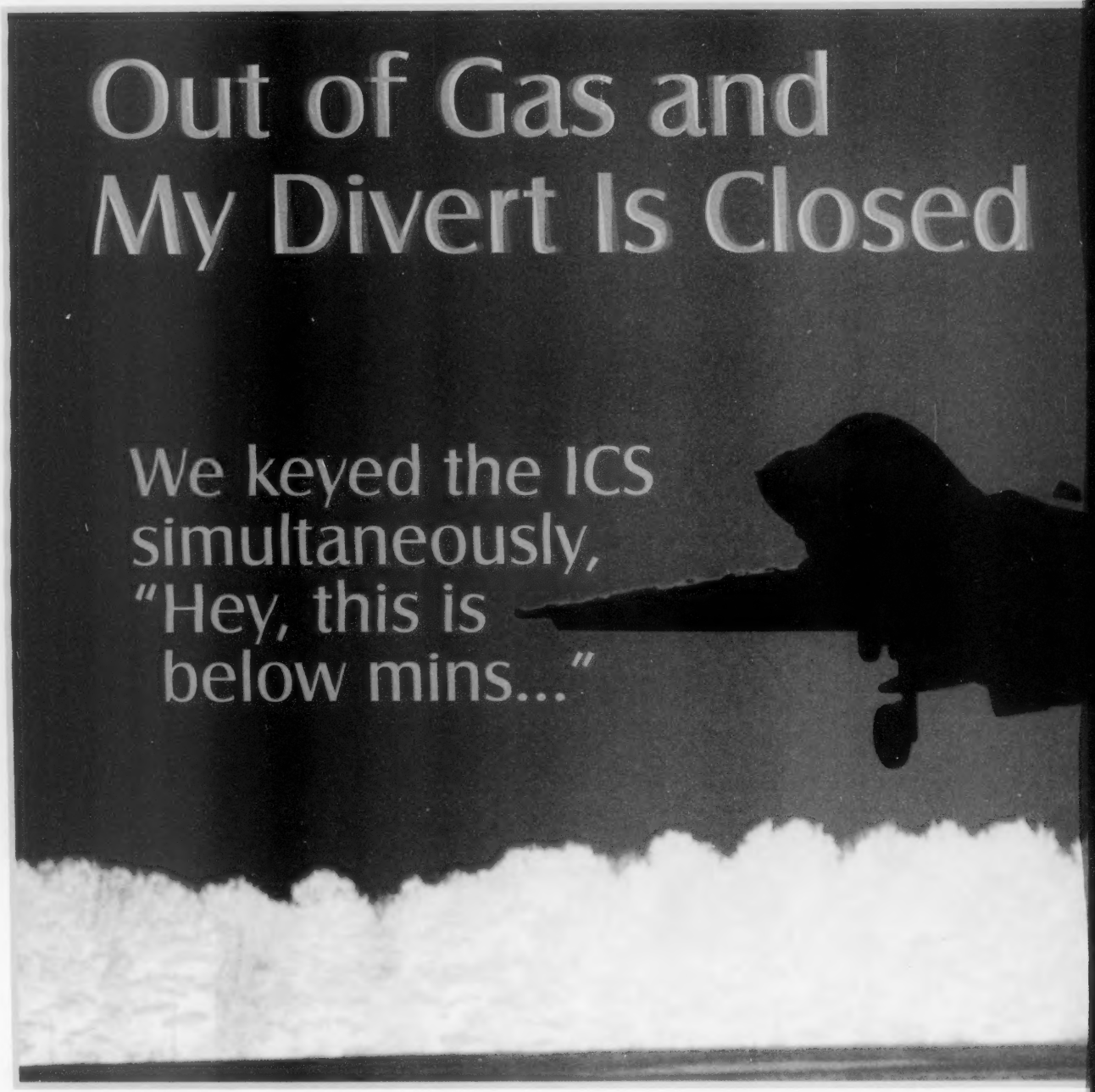
Out of Gas and My Divert Is Closed



by LCdr. John Richmond

I'VE DECLARED AN EMERGENCY FIVE TIMES IN 10 YEARS of flying—two for mechanical problems and three for fuel. Each gas crisis had one thing in common: I started fat on fuel. The third time, we had launched two Tomcats out of Oceana at moonrise (2046) for an NVG fam 2, a rendezvous and formation hop. Except for a low, thin layer at 1,000 feet over the working area at Dare County, the weather was perfect. Oceana was clear, and the Outer Banks twinkled in the clear air from Hatteras south to Wilmington.

At 2250, after the first NVG fam was complete, we headed north for home. The lights from the hotels in Virginia Beach were dim because the low, thin layer had drifted north. We both shot uneventful PARs into Oceana, which was now 400 feet, overcast and two miles visibility.

We planned to hot pump, then hot-switch everyone but me. I got to stay in the trunk and do it again. In the pits, I called Metro, and the forecaster told me the weather would remain 400 feet, overcast with two miles visibility. I asked about temporary conditions, but there were none.

When my new pilot hot-switched, he told me the forecaster had given him the same line, and, oh, by the way, the dew-point spread was two degrees. I looked up. The layer at 400 was broken because I could see the moon through the ceiling to the east. Cherry Point was a good divert and would be VFR all night. This made sense to me, based on what I'd seen from my previous flight. We would RTB on the next flight with 6.0 gas to make possible diverts.

We took off at 2340, and our wingman followed at midnight. At 0125, our wingman could no longer see the hotels and recommended we check the weather. I called Oceana Tower and was floored when the controller said, "One hundred, overcast, with one-quarter-mile visibility!" We immediately stopped the NVG fam and went max conserve. No big deal, because we were fat; our fuel was 8.5, and our wingman had 9.5. We maintained our altitude of 15,000 feet and pressed toward home.

We checked in with approach and heard, "Fly zero-four-zero degrees; descend and maintain five thousand feet."

We keyed the ICS simultaneously, "Hey, this is below mins. We're not even supposed to commence." Like any good fighter guys, we pressed.

The tower had reported 100 overcast and one-quarter visibility, but who really believes the tower? Besides that, we were fat. Through approach control, we learned Langley was clear, with five miles visibility. We formulated a game plan: two approaches at Oceana, then over to Chambers Field at Norfolk (which was 300 and 1). Then, if that didn't work, we would go to Langley.

We went dirty at six miles, with 7.9 on the gas. We flew into the weather at 900 feet and down to decision height. The diffusion of the rabbit lights on full intensity in the fog made lineup impossible. We thought, "No chance, paddles," and went missed approach.

From 200 feet on the waveoff, we could see the runway and taxi lights. Our wingman went missed approach right after us. Langley was again updated as five miles and clear. We decided to try another approach, hoping to receive better control and get lineup squared away, but… another missed approach. We went to NAS Norfolk at 3,000 feet. Our gas was 5.3, and Langley's forecast continued to be good.

We checked in with Norfolk Approach, told them we were at 3,000 feet and that we needed the weather at NAS Norfolk immediately. There was absolutely no sense of urgency from approach. I saw 5.0 on the gas and started

going offensive. It was now around 0200, and I told approach I was going to hold overhead at 3,000 feet.

"Look out the window and tell me what the weather is," I said.

Our wingman had proceeded overhead Chambers at 10,000 feet, trying to contact Metro. The weather over Chambers looked the same as Oceana, so I didn't have a lot of faith. When approach replied with a holding clearance over the field and an expected approach time 10 minutes later, I knew it was a waste of time and told him I was going to Langley.

En route, the controller called, "Be advised, Langley is closed!" My brain went into time compression. All this time I'd been digesting bits and pieces of base radio and heard fog and mist associated with Cherry Point. Then our wingman reported that Seymour, Johnson was 5,000, broken with unrestricted visibility. The decision was easy: we're outta here!

I declared an emergency and squawked 7700. Our gas was now 4.3. It was 125 miles to Seymour and after flying for almost four and half hours, I knew the winds were going to be at least 75 knots in the face.

We started the bingo profile to Seymour. Center told us to level off at 10,000 feet. I asked for a higher altitude. Passing 25K for 35K, we checked in and were told that Seymour Johnson was closed. More time compression. We kept climbing. The winds were 105 knots on the nose. I couldn't believe it. I told center to stand by. Our wingman broke off for Cherry Point because he had 1,500 more pounds of fuel than us. I slipped on the goggles and looked around. I could see the ground below. There were clouds over Cherry Point. I couldn't change the plan. I was going to Seymour Johnson.

I told center I was continuing to Seymour as we leveled off at with 2.9 on the gas. Center said they'd call and have someone turn on the lights, but soon they reported that no one answered. I made a Guard call for "any Seymour facility," and the Marines out of Cherry Point (bless 'em) answered. I asked them to call Seymour. Descending through about 15,000 feet, I had resigned myself to landing on the goggles.

We went green, found the runway, and no kidding, the lights were off, and nobody was home. We overflew the runway to check for obstructions, then entered a left downwind. As I backed him up with altitude and airspeed, my pilot greased it on, Air Force style. On deck, finally. It was 0240, and the gas was 1.8. We taxied on the goggles, parked next to the F-15Es, and called home plate.

Let's examine some of the lessons learned. OPNAV 3710 says not to begin an approach below mins. If we had abided by this rule—it's a no-brainer—we would have landed at Langley and spent the night in an Air Force Q. Get-home-itis got us.

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Forecasters can be wrong. Just like we all learned in metro at aviation indoctrination, a temperature-dew-point spread of less than 2 degrees equals fog. Our decision to take off in the first place was questionable.

Langley had not been clear with 5 miles visibility. At 0140, the field went to 200 overcast and 1.25 miles. They stayed that way the rest of the night. In reality, my "out" was never there.

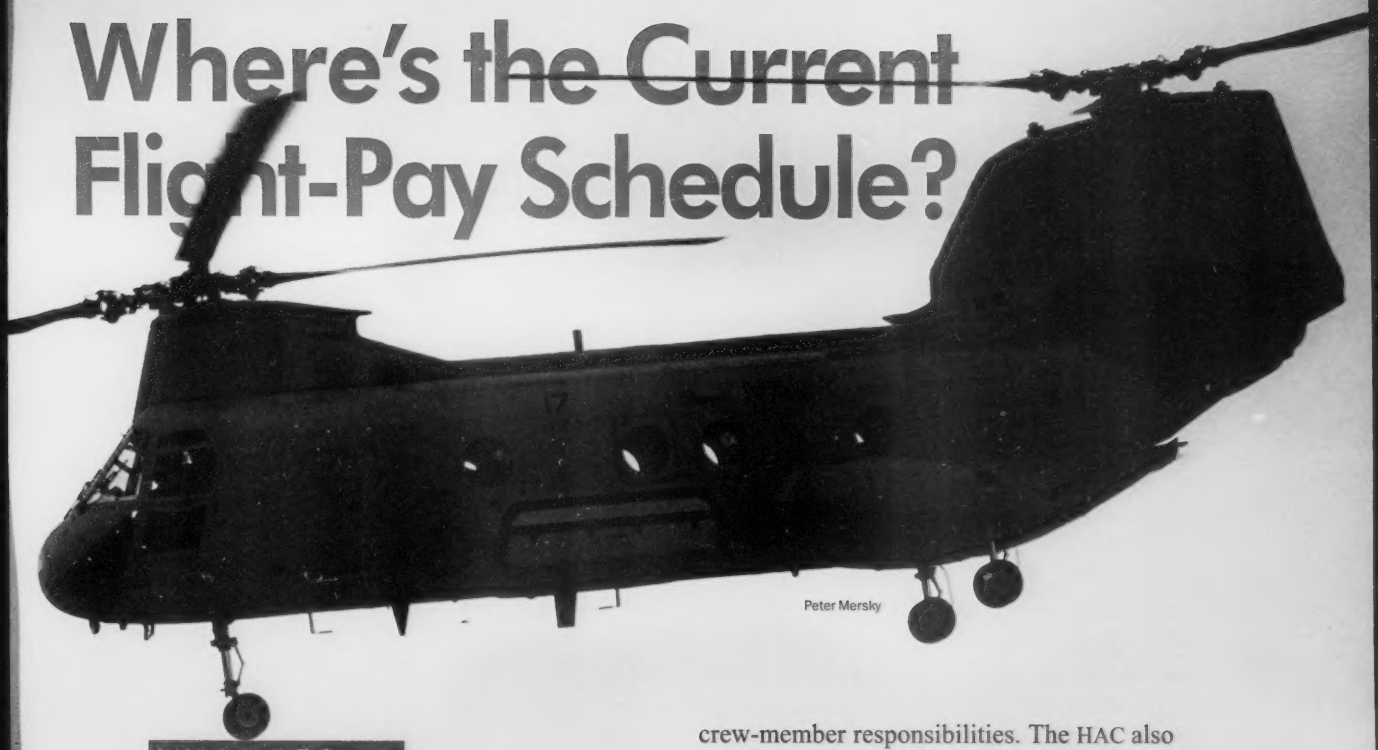
Langley was open. It's their "master jet base" and is always manned. They do observe quiet hours, like Oceana does, after 2300. If you need weather immediately, call the tower. They have a window.

Approach control for Chambers Field is at Norfolk International. Remember that, unlike on the ship, when you are in trouble, you will not detect any sense of urgency on the other end of the radio. My only exception was the Washington Center controller, who was great.

The goggles do work in the pattern. Keep them in your bag of tricks. You never know.

LCdr. Richmond flies with VF-102.

Where's the Current Flight-Pay Schedule?



Peter Mersky

by Lt. Antonin Z. Sergelin

AT LEAST ONCE IN OUR CAREERS, A DAY COMES when we aren't being paid enough to fly. That day came for me during a cross-country in Japan.

My squadron provides day-night amphibious SAR support for the Navy's forward-deployed, amphibious ready group (ARG). When the ARG is not under way, our two HH-46D aircraft are based at a nearby MCAS. From there, we fly to a helo pad near the ship's berth a few days before the ARG gets under way. The helo pad is not served by NAVAIDS, so we require VMC to fly to it. Those extra days provide a cushion in case of weather or aircraft problems. Typically, the flight takes 90 minutes to cover 160 miles over water and mountains.

We briefed a two-aircraft, VFR flight to land on the helo pad. Weather had already delayed our departure for two days, and we were concerned about making it to the ship. The weather brief showed VFR to marginal VFR conditions en route, and good weather at our destination. A senior HAC, junior H2P, crew chief, and second crewman manned each aircraft. The crew-coordination portion of the brief included inadvertent IMC, vertigo and crew-member responsibilities. The HAC also encouraged anyone concerned about the conduct of the flight to speak up so the crew could assess the situation.

I was in the wing aircraft and at the controls for most of the flight. We were in a trail position when the lead, cutting time off the route, decided to take us through a saddle in some mountains. We rogered and followed.

As we approached the saddle, the weather looked marginal, and I didn't think we could maintain VFR. I told the HAC. A few seconds later, I realized we wouldn't make it through the pass, and I told lead we were breaking away from the formation to the left. Passing through 90 degrees of turn, we lost sight of the lead and the saddle as the clouds filled the pass. We saw lead again after detouring around the mountain pass. Rejoining our playmate, we continued until feet wet, picked up the coastline, and proceeded VFR.

Later, the weather began to deteriorate, and it was hard for me to maintain formation. What began as light fog and drizzle quickly became thunderstorms and heavy rain. In a minute, I lost and reacquired the lead three times. Finally, vertigo got the best of me. The HAC took the controls, broke off formation, started climbing,

and contacted approach. We wanted to divert to a nearby civilian airfield.

Approach responded with instructions to level at 4,000 feet, but we passed through our assigned altitude—climbing at 1,500 fpm—with the collective bottomed! We were caught in an updraft and struggled to get back to 4,000 feet. Approach gave us clearance, and we began our descent to the field. I was still fighting the leans when the HAC asked for MDA; I mistakenly read the RVR. The HAC completed the approach, and, fortunately, we did not encounter any downdrafts on final.

After our landing, the field closed because of the weather.

We had not heard from our playmate for 20 minutes. The HAC and I worried that they hadn't made it. We discussed launching a SAR when the weather cleared. To our relief, we received a safe-on-deck message from them soon thereafter.

What lessons did I learn? The first is that smooth cockpit coordination was critical during our landing. While I was concentrating on maintaining our formation position, the HAC was scanning instruments. This division of duties allowed us to smoothly change controls when I got vertigo.

The second, and most important, lesson is that I'm not infallible. I thought I couldn't lose situational awareness or be affected by get-there-itis and lose the big picture. In fact, because of my tunnel vision in trying to maintain position on the lead, I lost sight of the quickly deteriorating weather. As briefed, we should have broken off earlier, landed, and finished the flight after the weather cleared.

I earned my flight pay that day, and earned a healthy respect for weather, crew coordination, and systematic application of operational risk management.

Lt. Sergelin flies with HC-5.

Letters

Re: "Wheel-Deep in the Mud" (Nov '98) and Letters, Feb '99

NAS Whidbey Island—I'd like to respond to Capt. Kunkle's assertion that there is "a lack of understanding of landing basics in the EA-6B community." We don't train to the "roll and go" during normal landing. If deceleration is abnormally low during rollout, crews are taught emergency procedures that include lowering the hook to take a long-field arrestment, if available.

Many factors mitigate against using the roll-and-go option the FA-18 community uses. Braking performance, anti-skid response, engine spool-up time and acceleration capability are some of the principal elements that complicate a mid-field decision to go around. In brief, the Prowler has much less margin for safety than the Hornet in the roll-and-go situation, and the potential benefits are likewise reduced.

Capt. Kunkle indicates his single-seat experience makes it hard to understand shared responsibility for the use of the tailhook. Many years of aircrew-coordination experience in both the A-6 and EA-6B aircraft have led our community to conclude that dropping the tailhook for a long-field arrestment may best be accomplished by the right-seater.

A high-speed abort in the Prowler demands considerable effort by the pilot. If he wants to drop the hook, he must either release the stick or cross left arm over right to pull the handle, which also immediately activates the nosewheel-steering system.

For these reasons, many crews brief that ECMO 1 assumes equal responsibility to drop the hook.

The incident that precipitated this discussion was a mishap with admitted crew error. With a 29-year history of Prowler operations, I do not believe it characterizes a community's "lack of understanding," but rather serves as a painful reminder that there is no substitute for clear communication and good judgement. This particular mishap has elicited good ready-room discussion, and I believe the forums provided by both the MIR and *Approach* have improved EA-6B safety consciousness in the landing environment.

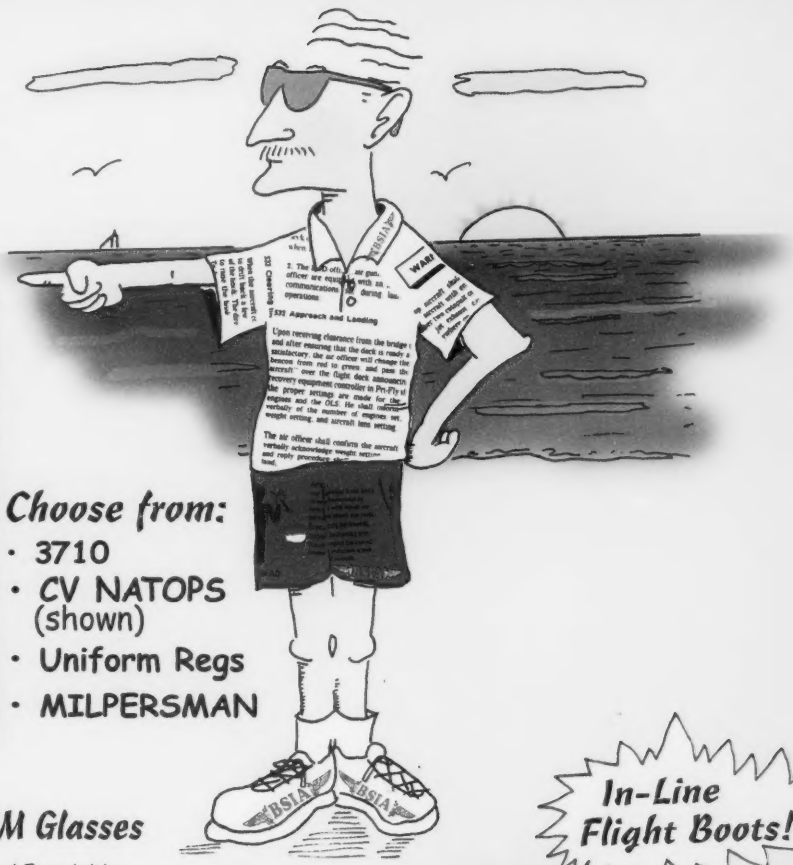
Capt. John Cryer
Commander, Electronic Attack Wing
U.S. Pacific Fleet

Visit our new web site at: www.safetycenter.navy.mil

Our web site has been redesigned and improved. It's 10 times larger, easier to navigate and better looking. We offer publications and posters plus an FTP site to speed up the down-load, with no password required.

BROWNSHOES IN ACTION COMIX

"The kind real aviators like"
by Cdr. Ward Carroll



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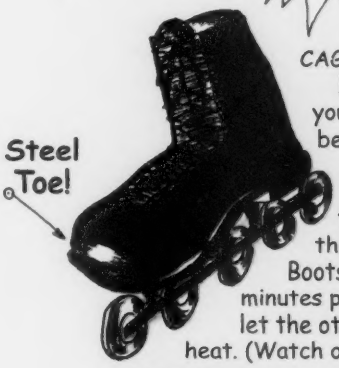

CAG sez he's tired of late man-ups, but your brief went long because the Hornet guys had a lot of questions. Big trouble? Not with these In-Line Flight Boots! Walk—no, skate minutes prior to launch and let the other guys take the heat. (Watch out for pad eyes...)

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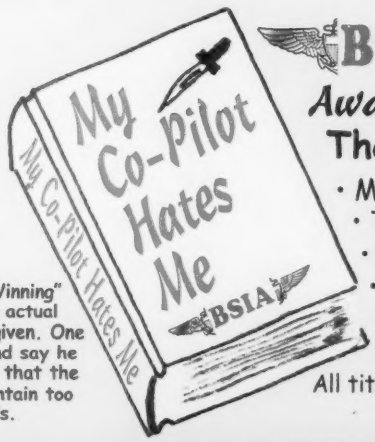

BSIA

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***By "Award-Winning" we don't mean actual "Award" was given. One guy did call and say he liked the fact that the text didn't contain too many big words.**